Scientific Excellence • Resource Protection & Conservation • Benefits for Canadians
Excellence scientifique • Protection et conservation des ressources • Bénéfices aux Canadiens

CTD Data Collected During the Survey of a Mediterranean Salt Lens

D. Hebert, N. Oakey, B. Ruddick, L. Armi,
J. Price, P.L. Richardson, and T. Rossby

Published by:

Physical & Chemical Sciences Branch
Scotia-Fundy Region
Department of Fisheries and Oceans
Bedford Institute of Oceanography
P.O. Box 1006, Dartmouth, Nova Scotia
Canada B2Y 4A2

June 1988

Canadian Data Report of Hydrography and Ocean Sciences No. 61

Fisheries and Oceans   Pêches et Océans

Canada

Canadian Data Report Of Hydrography and Ocean Sciences

Data reports provide a medium for the documentation and dissemination of data in a form directly useable by the scientific and engineering communities. Generally, the reports contain raw and or analyzed data but will not contain interpretations of the data. Such compilations commonly will have been prepared in support of work related to the programs and interests of the Ocean Science and Surveys (OSS) sector of the Department of Fisheries and Oceans.

Data reports are not intended for general distribution and the contents must not be referred to in other publications without prior written authorization from the issuing establishment. The correct citation appears above the abstract of each report. Data reports are abstracted in *Aquatic Sciences and Fisheries Abstracts* and indexed in the Department's annual index to scientific and technical publications.

Data reports are produced regionally but are numbered nationally. Requests for individual reports will be filled by the issuing establishment listed on the front cover and title page. Out of stock reports will be supplied for a fee by commercial agents.

Regional and headquarters establishments of Ocean Science and Surveys ceased publication of their various report series as of December 1981. A complete listing of these publications is published in the *Canadian Journal of Fisheries and Aquatic Sciences*, Volume 39: Index to Publications 1982. The current series, which begins with report number 1, was initiated in January 1982.

Rapport statistique canadien sur l'hydrographie et les sciences océaniques

Les rapports statistiques servent de véhicule pour la compilation et la diffusion des données sous une forme directement utilisable par les scientifiques et les techniciens. En général, les rapports contiennent des données brutes ou analysées, mais ne fournissent pas d'interprétation des données. Ces compilations sont préparées le plus souvent à l'appui de travaux liés aux programmes et intérêts du service des Sciences et levés océaniques (SLO) du ministère des Pêches et des Océans.

Les rapports statistiques ne sont pas destinés à une vaste distribution et leur contenu ne doit pas être mentionné dans une publication sans une autorisation écrite préalable de l'établissement auteur. Le titre exact paraît au-dessus du résumé de chaque rapport. Les rapports statistiques sont résumés dans la revue *Résumés des sciences halieutiques et aquatiques*, et ils sont classés dans l'index annuel des publications scientifiques et techniques du Ministère.

Les rapports statistiques sont produits à l'échelon régional, mais numérotés à l'échelon national. Les demandes de rapports seront satisfaites par l'établissement auteur dont le nom figure sur la couverture et la page du titre. Les rapports épuisés sont fournis contre rétribution par des agents commerciaux.

Les établissements des Sciences et levés océaniques dans les régions et à l'administration centrale ont cessé de publier leurs diverses séries de rapports en décembre 1981. Une liste complète de ces publications figure dans le volume 39, Index des publications 1982, du *Journal canadien des sciences halieutiques et aquatiques*. La série actuelle a commencé avec la publication du rapport numéro 1 en janvier 1982.

Canadian Data Report of

Hydrography and Ocean Sciences No. 61

June 1988

CTD DATA COLLECTED DURING THE SURVEY OF A MEDITERRANEAN SALT LENS

BY

D. Hebert[1], N. Oakey[2], B. Ruddick[1], L. Armi[3], J. Price[4],
P.L. Richardson[4], and T. Rossby[5]

1 Department of Oceanography, Dalhousie University,
Halifax, Nova Scotia, Canada B3H 4J1

2 Physical and Chemical Sciences Branch, Scotia-Fundy Region,
Department of Fisheries and Oceans, Bedford Institute of Oceanography,
Dartmouth, Nova Scotia, Canada B2Y 4A2

3 Scripps Institute of Oceanography
LaJolla, California, USA 92093

4 Woods Hole Oceanographic Institution,
Woods Hole, Massachusetts, USA 02543

5 Graduate School of Oceanography
University of Rhode Island, Kingston, Rhode Island, USA

90-05164/

Minister of Supply and Services 1988
Cat. No. FS 97-16/61E ISSN 0711-6721

Correct citation for this publication:

Hebert, D., N. Oakey, B. Ruddick, L. Armi, J. Price, P.L. Richardson, and T. Rossby. 1988. CTD data collected during the survey of a Mediterranean salt lens. Can. Data Rep. Hydrogr. Ocean Sci. No. 61: iv + 379 pp.

ABSTRACT

Hebert, D., N. Oakey, B. Ruddick, L. Armi, J. Price, P.L. Richardson, and T. Rossby. 1988. CTD data collected during the survey of a Mediterranean salt lens. Can. Data Rep. Hydrogr. Ocean Sci. No. 61: iv + 379 pp.

An eddy of Mediterranean water (commonly known as a Meddy or Mediterranean salt lens) was tracked for two years in the eastern North Atlantic. During this period, four conductivity-temperature-depth (CTD) surveys were made. This report presents the CTD data collected during the four surveys in the form of vertical profiles of salinity, θ_1, and σ_1.

RÉSUMÉ

Hebert, D. , N. Oakey, B. Ruddick, L. Armi, J. Price, P.L. Richardson, and T. Rossby. 1988. CTD data collected during the survey of a Mediterranean salt lens. Can. Data Rep. Hydrogr. Ocean Sci. No. 61: iv + 379 pp.

Un tourbillon composé d'eau Méditerranéenne, généralement appelé lentille méditerranéenne salée, a été suivi pendant deux ans dans l'est de l'Atlantic Nord. Pendant cette période, quatre campagnes de mesures de conductivité-température-profondeur ont été effectuées dans cette région. Ce rapport présente, sous forme de profils verticaux de salinité, θ_1 et σ_1, les données recueillies au cours de ces quatre campagnes.

TABLE OF CONTENTS

ABSTRACT/RÉSUMÉ iii

1. INTRODUCTION 1

2. CTD POST-PROCESSING 3

3. PRESENTATION OF CTD DATA 6

4. ACKNOWLEDGEMENTS 7

5. REFERENCES 7

6. DATA PRESENTATION

   October 1984 survey 9

   June 1985 survey 147

   October 1985 survey 219

   October 1986 survey 357

INTRODUCTION

In October 1976, McDowell and Rossby (1978) discovered an anticyclonic lens in the permanent thermocline off the Bahamas. The large salinity anomaly of the lens, 0.2 PSU – more than 20 times the standard deviation of the background salinity, led them to speculate that the source region of the eddy was the Mediterranean or eastern Atlantic. Thus, they named this feature a "Meddy". During the study of a portion of the North Atlantic Subtropical gyre (a triangular region centered at $27°N, 32°30'W$ with sides approximately 1000 km long), Armi and Stommel (1983) found that 1 out of the 143 stations passed through a patch of relatively undiluted Mediterranean water (with a salinity of approximately 36.1 PSU). Three Meddies were discovered in the Canary Basin during Leg 3 of the Transient Tracers in the Ocean (TTO) survey (Physical and Chemical Oceanographic Data Facility, 1981; Armi and Zenk, 1984). Since the discovery of these Meddies [or Mediterranean salt lenses as called by Armi and Zenk (1984)] was accidental, these features were not examined in detail, usually less than 10 CTD stations were made.

The large number of Meddies found in the Canary Basin region and their possible importance in the salt/heat transport in the Atlantic Ocean led Armi and Rossby to propose conducting two detailed surveys, one year apart, of a single Meddy. Since Meddies do not have any surface expression, a Meddy must be tracked by floats placed in the Meddy. Two types of floats (pop–up and SOFAR) were placed in the Meddy. The pop–up floats record pressure and temperature and at a preset time, pop to the surface and transmit their data to the ARGOS satellite. Their position at this time is determined by the satellite. Thus these floats only give the position of Meddy at one time and only if the float remained in the Meddy. The temperature signal will tell whether the float remained in the Meddy. Rossby (1988) discusses some of the results from these floats. The SOFAR floats emit a low–frequency (250 Hz) tone twice a day, allowing the Meddy to be tracked continuously from listening stations. The SOFAR floats were tracked using three listening stations locations on moorings in the region (Price *et al.*, 1986). The track of one SOFAR float (128) is shown in Figure 1. These floats also allow a ship to determine the position of the Meddy, which was accomplished three times with amazingly few problems. Details of the SOFAR floats in the Meddy and other SOFAR floats in the region can be found in Price *et al.* (1986).

A survey of this Meddy was also proposed by Oakey and Ruddick. Estimates

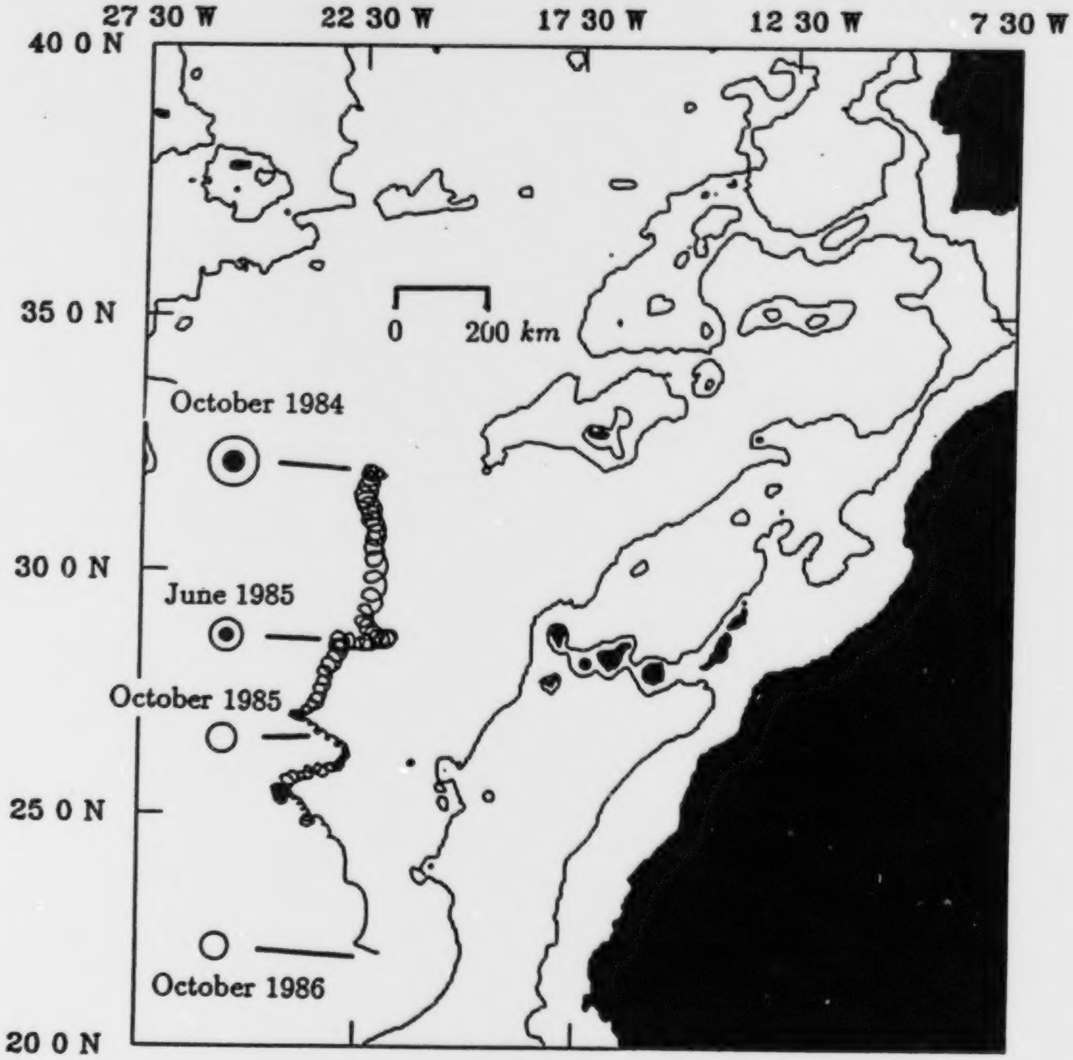


Figure 1. Trajectory of SOFAR float 128 located in the Meddy over a two year period. Location and size (to scale) of the Meddy at the time of the four surveys are also shown. The solid circle represents the core of the Meddy.

of mixing rates made during this survey would be compared to the changes in the Meddy over the one year period. A fourth survey, not as detailed as the first three surveys was conducted by Price and Richardson during the cruise to recover the SOFAR listening stations.

The location of each survey is shown in Figure 1. The size of the core (solid circle) and total size of the Meddy (open circle) for each survey is also shown. The core is the region of presumably undiluted Meddy water from the time of its formation. Details of these regions are given in Armi *et al.* (1988) and Hebert (1988).

Table 1 gives a list of the participants and the measurements made during each survey. Dalhousie University became the clearing house for the CTD data. The next section gives details of the post-processing done at Dalhousie University to get the data into a common format. This data report presents the combined CTD measurements (and the XBT measurements for the fourth survey). Profiles of salinity, θ_1 and σ_1 (potential temperature and density with a reference pressure of 1000 db) from the four surveys are presented.

CTD POST-PROCESSING

The CTD data from the four different surveys (see Table 1) were assembled, processed and edited at Dalhousie University by Hebert as an integral part of his doctoral dissertation (Hebert, 1988). As part of the analysis, the data were put into a common format for potential distribution. A brief description of the original data sets and the processing and calibration is given below for each of the four surveys. All salinity calculations from temperature, conductivity and pressure were determined [Practical Salinity Scale] by the formula given by Lewis (1981).

a) First Survey (October, 1984): Armi and Rossby

The CTD data from the first survey were collected using a Neil Brown Mark 3 CTD used largely in a tow-yo mode where the CTD is cycled between depth intervals as the ship steams very slowly. The quoted accuracy of the data is: Temperature, ±0.005° C; Salinity, ±0.005 PSU; Pressure, ±6 db. Only a few bottles were used and were in agreement with the above. Data were provided as 1 second average values of temperature, salinity and pressure as files of tow-yo profiles given a station and cast number. These data were broken into up and down profiles and assigned a new station number consisting of the original two or three digit station number, a single digit cast number, a two digit profiler number and a single digit direction

Survey	Date	Julian Days†	Principal Investigators	Objectives
I	Oct. 84	259–277	Armi (Scripps Institution of Oceanography) Rossby (University of Rhode Island)	- find a Meddy - seed it with SOFAR floats and pop-up drifters - detailed CTD survey - PEGASUS velocity profiles
II	June 85	519–537	Oakey (Bedford Institute of Oceanography) Ruddick (Dalhousie University) Hebert (Dalhousie University)	- locate same Meddy - detailed CTD survey - nutrients & ^{3}H-He samples - velocity measurements (9 expendable current profilers and a current meter mooring) - EPSONDE microstructure measurements
III	Oct. 85	662–668	Armi (Scripps Institution of Oceanography) Bower (University of Rhode Island)	- locate Meddy - detailed CTD survey - PEGASUS velocity profiles
IV	Oct. 86	1013–1015	Richardson (Woods Hole Oceanographic Institution) Price (Woods Hole Oceanographic Institution)	- locate Meddy - XBT survey - CTD survey - XCP profiles

† Julian Day 1 is January 1, 1984.

Table 1. List of participants and measurements made during the study of the Meddy.

number (0 for down cast and 1 for up cast). The position of the ship was determined to coincide with the time that the CTD was at 1000 db and this was merged with the temperature, salinity, pressure data. The latitude and longitude data between one hour before the CTD reached 1000 db (or the start of the cast if this time was later) and one hour after the CTD reached 1000 db (or the end of the cast if this was earlier) was fit using a linear least-squares technique to estimate the ship position at the time the CTD reached 1000 db. Salinity and temperature data at 2 db intervals from 2 db to 2000 db were determined by linear interpolation of the 1 second averaged data. Data from the original set which did not include data near 1000 db were discarded because a self-consistent ship position could not be assigned; data below 2000 db were discarded because they did not overlap with the majority of the data.

b) Second Survey (June 1985): Oakey, Ruddick and Hebert

Data from the second survey were obtained using a Guildline Digital CTD. The calibration checks are described in detail by Hebert(1988) and these are summarized here. Detailed calibrations were done in the laboratory before and after the survey in a temperature controlled constant salinity bath to determine the temperature and conductivity calibration an accuracy better than ±0.003° C and ±3 ppm in conductivity ratio. The CTD calibrated before and after the cruise indicated a shift of 0.010° C between March 1985 and July 1985. During the survey, *in situ* calibration samples were obtained using 1.2ℓ Niskin bottles and reversing thermometers. A detailed analysis of these data (over 200 points) indicates an RMS difference between CTD temperature and bottle thermometer temperature of ±0.014° C (of which probably ±0.010° C is due to the mercury thermometers). Over 300 salinity determinations from water samples gave an RMS difference from the CTD of ±0.008 PSU. Errors in the pressure determination are estimated to be better than ±5 db. Raw data with calibrations applied were averaged in 2 db bins from 2 db to the bottom of the cast (approximately 2000 db) for each station. Only down profiles were used because turbulence produced by the CTD when the CTD is raised produces a very noisy salinity and temperature signal. Several tow-yo stations were done and a two digit number indicating the down cast was appended to the station number.

c) Third Survey (October 1985): Armi and Bower

Data from the third survey were obtained with a Neil Brown Mark 3 CTD and were processed identically to those from the first survey.

d) Fourth Survey (October 1986): Richardson and Price

Data from the fourth survey obtained using a Neil Brown Mark 3 CTD were provided to Dalhousie calibrated and sorted into 2 db bins with an assigned station number and position. For these data, the quoted accuracy is: Temperature, ±0.005° C; Conductivity, ±0.005 mmho; and Pressure, ±6.5 db.

PRESENTATION OF CTD DATA

In this report, profiles of salinity, θ_1 and σ_1 in the final format are presented. At the beginning of each section, a list of stations*, their position, time and radius (described below) are given. This is followed by a plot of station locations and waterfall plots of S, θ_1, and σ_1 for the stations shown on the map. On the waterfall plots successive traces are offset by 5 tick marks: Salinity, 0.5 PSU; Temperature, 5° C; and density 0.5 kg m^{-3}. Plots are always presented in the order salinity, θ_1 and σ_1 readily identified by their axis labels.

Hebert (1988) used the CTD data (and other data available) to determine the location and size of the Meddy for each survey. Based on the spatial coverage, different models for the Meddy were used. For the first and third survey, a circular Meddy advected at a constant velocity was used. For the second survey, a relatively stationary elliptical Meddy was used as the model. The spatial coverage of the fourth survey forced the model to be a stationary circular eddy. Details and justification for these models are given in Hebert (1988). The radii given in the tables are based on these models.

Following the table, the data for that survey period are presented as waterfall plots. These plots are preceded by a plot showing the location of the stations contained in the following waterfall plots. The core of the Meddy, if present, and the total size of the Meddy at the time of the first station of the waterfall plot are also shown. A thin line shows the trajectory of the Meddy (if known) for the time period required to complete the stations shown in the following waterfall plots.

* Subsequent examination of the CTD and bottle data from the first survey has shown that the salinity for some stations is incorrect. These stations are indicated in the table.

Further details of the complete data set may be obtained by contacting N.S. Oakey at the address given.

ACKNOWLEDGEMENTS

We would like to thank the captains and crews of the research vessels RV OCEANUS (Surveys I and III), CSS HUDSON (Survey II) and RV ENDEAVOR (Survey IV) for their skillful and willing assistance during the field work. Many thanks to Yanko Andrade, Larry Bellefontaine, Lorne Covington, Paul d'Entremont, Paul Dunphy, Bruno Greifeneder, Peter Pozdnekoff, Jan Szelag, Ed Verge, Bruce Wile, R.T. Williams and Sharon Yamasaki for their work on the collection of the CTD data. We are grateful to Roger Pettipas, Rick Olsen, Jan Szelag and Sharon Yamasaki for the initial processing and calibration of the CTD data. The help of Mary–Jo Graca and Annabelle Stewart in processing the different data sets at Dalhousie University is also greatly appreciated.

This large cooperative experiment depended on the support of the following agencies and institutions: US National Science Foundation Grants OCE 83–10889 (LA), US National Science Foundation Grant OCE82-14066 and OCE 86-00055 (JP, PR), Atlantic Oceanographic Laboratory, Canadian Department of Fisheries and Oceans (NO, BR) and the Canadian Natural Sciences and Engineering Research Council (DH, BR).

REFERENCES

Armi, L., D. Hebert, N. Oakey, J. Price, P. Richardson, T. Rossby and B. Ruddick. 1988. Two years in the life of a Mediterranean salt lens, *J. Phys. Oceanogr.*, (submitted).

Armi, L., and H. Stommel. 1983. Four views of a portion of the North Atlantic Subtropical Gyre, *J. Phys. Oceanogr.*, **13**:828-857.

Armi, L. and W. Zenk. 1984. Large lenses of highly saline Mediterranean water, *J. Phys. Oceanogr.*, **14**:1560-1576.

Hebert, D. 1988. *A Mediterranean Salt Lens*, Ph.D. thesis, Dalhousie University, Halifax, NS, Canada.

Lewis, E.L. 1981. The practical salinity scale 1978 and its antecedents, *UNESCO Technical Papers in Marine Science*, **37**:13-18.

McDowell, S.E. and H.T. Rossby. 1978. Mediterranean water: An intense mesoscale eddy off the Bahamas, *Science*, **202**:1085-1087.

Physical and Chemical Oceanography Data Facility. 1981. Transient Tracers in the Ocean. Preliminary Hydrographic Report Leg 3, PACODF Publ. No. 215, Scripps Institution of Oceanography, La Jolla, CA, 268 pp.

Price, J.F., T.K. McKee, J.R. Valdes, P.L. Richardson and L. Armi. 1986. SOFAR float Mediterranean outflow experiment data from the first year, 1984-1985, Woods Hole Oceanogr. Tech. Rept. WHOI-86-31.

Rossby, T. 1988. Five drifters in a Mediterranean salt lens, *Deep Sea Res.*, (in press).

SURVEY I

OCTOBER 1984

RV OCEANUS

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
291010	33° 20.1′	24° 59.8′	52976	258	338.0
291021	33° 20.3′	24° 59.2′	56030	258	337.3
301010	33° 30.3′	24° 29.7′	66856	258	306.6
301021	33° 30.6′	24° 29.4′	67865	258	306.5
311010	33° 14.1′	24° 9.5′	78108	258	263.3
311021	33° 14.0′	24° 9.0′	79228	258	262.5
321010	32° 55.4′	23° 44.2′	4405	259	211.1
321021	32° 56.0′	23° 44.6′	5925	259	212.2
331010	32° 40.7′	23° 23.4′	15551	259	169.1
331021	32° 40.6′	23° 23.5′	16457	259	169.2
341010†	32° 23.8′	22° 59.5′	27681	259	121.6
341021†	32° 23.8′	22° 59.1′	28573	259	121.0
351010	32° 11.3′	22° 29.3′	41563	259	68.8
351021	32° 10.8′	22° 28.0′	44084	259	66.6
362011	31° 59.0′	21° 52.1′	77639	259	5.9
362020	31° 58.7′	21° 51.7′	78735	259	5.3
362031	31° 58.5′	21° 51.5′	79817	259	4.9
362040	31° 58.4′	21° 51.3′	81093	259	4.6
362051	31° 58.2′	21° 50.9′	82380	259	4.0
362060	31° 58.0′	21° 50.5′	83437	259	3.5
362071	31° 57.9′	21° 50.2′	84652	259	3.1
362080	31° 57.4′	21° 48.3′	1844	260	2.2
362091	31° 57.2′	21° 47.3′	4938	260	3.1
362100	31° 57.0′	21° 46.1′	7424	260	4.7
362111	31° 56.9′	21° 44.8′	9806	260	6.6
362120	31° 56.7′	21° 42.0′	13401	260	10.8
362131	31° 56.6′	21° 40.9′	15255	260	12.5
363121	31° 57.0′	21° 27.1′	36086	260	34.1
363130	31° 56.6′	21° 26.8′	37142	260	34.6
363141	31° 56.0′	21° 26.6′	38549	260	35.1
363150	31° 55.6′	21° 26.4′	39629	260	35.5
363161	31° 55.0′	21° 26.2′	41292	260	36.0
364010	31° 54.7′	21° 24.7′	43869	260	38.5
364021	31° 54.7′	21° 23.2′	46070	260	40.8
364030	31° 54.7′	21° 22.4′	47141	260	42.1
364041	31° 54.6′	21° 21.4′	48874	260	43.7
364050	31° 54.4′	21° 20.6′	50178	260	45.0
364061	31° 54.2′	21° 19.6′	51847	260	46.6
364070	31° 54.1′	21° 18.7′	53195	260	48.0
364081	31° 53.9′	21° 17.7′	54780	260	49.7
365010	31° 53.7′	21° 16.3′	57083	260	51.9
365021	31° 53.5′	21° 15.3′	58698	260	53.6
365030	31° 53.5′	21° 14.8′	59487	260	54.3
365041	31° 53.2′	21° 13.0′	61974	260	57.2
371010	31° 49.1′	21° 50.4′	76515	260	17.1

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
371021	31° 49.9′	21° 50.4′	78148	260	15.6
371030	31° 50.3′	21° 50.4′	79005	260	14.9
371041	31° 51.0′	21° 50.5′	80362	260	13.6
371050	31° 51.5′	21° 50.4′	81378	260	12.7
371061	31° 52.2′	21° 50.3′	82957	260	11.3
372010	31° 52.8′	21° 50.2′	84362	260	10.2
372021	31° 53.7′	21° 50.3′	86071	260	8.6
372030	31° 55.0′	21° 50.5′	2216	261	6.3
372041	31° 56.1′	21° 51.4′	4115	261	5.3
372050	31° 57.4′	21° 52.3′	6227	261	5.1
372061	31° 58.5′	21° 52.8′	8102	261	5.7
372070	31° 59.6′	21° 53.0′	9921	261	6.5
372081	32° .7′	21° 52.7′	11790	261	7.2
372090	32° 1.6′	21° 52.3′	13417	261	8.0
372101	32° 2.7′	21° 51.7′	15445	261	9.3
372110	32° 4.0′	21° 50.8′	17661	261	11.1
372121	32° 4.9′	21° 50.1′	19365	261	12.6
372130	32° 5.9′	21° 49.8′	20799	261	14.4
372141	32° 7.1′	21° 49.4′	22438	261	16.6
372150	32° 8.2′	21° 48.9′	24042	261	18.7
372161	32° 9.5′	21° 48.2′	25800	261	21.2
374061	32° 18.6′	21° 47.7′	49187	261	38.3
391010‡	31° 44.5′	21° 58.3′	76842	261	28.2
391021‡	31° 45.2′	21° 57.9′	78450	261	26.7
391030‡	31° 45.5′	21° 57.9′	79250	261	26.2
391041‡	31° 46.1′	21° 57.7′	80678	261	25.1
391050‡	31° 46.5′	21° 57.3′	81788	261	24.1
391061‡	31° 47.2′	21° 57.4′	83296	261	23.1
391070‡	31° 47.7′	21° 57.5′	84200	261	22.3
391081‡	31° 48.3′	21° 57.6′	85444	261	21.5
391090‡	31° 49.3′	21° 57.5′	1373	262	19.9
391101‡	31° 49.9′	21° 57.0′	3554	262	18.5
391110‡	31° 50.2′	21° 56.6′	4769	262	17.6
391121‡	31° 50.5′	21° 55.4′	6592	262	16.1
391130‡	31° 51.1′	21° 54.6′	8065	262	14.5
391141‡	31° 51.9′	21° 53.7′	9898	262	12.4
391150‡	31° 52.6′	21° 53.0′	11333	262	10.8
391161‡	31° 53.6′	21° 52.4′	13086	262	8.7
391170‡	31° 55.0′	21° 51.5′	15858	262	5.7
391181‡	31° 55.8′	21° 51.1′	17468	262	4.1
391190‡	31° 56.5′	21° 50.8′	18701	262	2.7
391201‡	31° 57.2′	21° 50.3′	20188	262	1.1
391210‡	31° 57.8′	21° 49.8′	21344	262	.3
391221‡	31° 58.7′	21° 49.0′	23411	262	2.4
401010	31° 54.7′	21° 53.1′	3837	263	6.5

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
401021	31° 55.6′	21° 52.6′	8435	263	4.6
411010	31° 53.3′	22° 1.1′	18203	263	18.1
411021	31° 53.8′	22° .5′	21158	263	16.8
421010*	31° 54.0′	22° 7.7′	39029	263	27.2
421021*	31° 53.1′	22° 5.7′	43683	263	24.5
431010	31° 52.6′	22° 15.0′	53509	263	38.8
431021	31° 52.9′	22° 15.8′	57692	263	39.8
441010	31° 52.4′	22° 18.4′	67506	263	43.9
441021	31° 51.7′	22° 20.9′	72019	263	47.9
451010	31° 52.8′	22° 28.2′	5978	264	58.6
451021	31° 52.2′	22° 28.7′	9657	264	59.5
461010*	31° 52.4′	22° 33.5′	49762	264	66.3
461021*	31° 51.3′	22° 34.5′	54148	264	68.1
471010†	31° 52.6′	22° 28.2′	63737	264	57.8
471021†	31° 52.7′	22° 27.6′	64394	264	56.9
471030†	31° 52.7′	22° 27.4′	64670	264	56.6
471041†	31° 52.9′	22° 26.3′	65940	264	54.8
471050†	31° 52.9′	22° 25.6′	66711	264	53.7
471061†	31° 54.3′	22° 12.3′	84067	264	32.4
471070†	31° 54.2′	22° 9.6′	764	265	28.2
471081†	31° 54.2′	22° 8.5′	2048	265	26.4
471090†	31° 54.3′	22° 7.4′	3475	265	24.7
471101†	31° 54.3′	22° 6.4′	4807	265	23.1
471110†	31° 54.3′	22° 5.4′	6427	265	21.6
471121†	31° 54.2′	22° 4.6′	7684	265	20.4
471130†	31° 54.2′	22° 3.5′	9218	265	18.7
471141†	31° 54.2′	22° 2.4′	10549	265	17.0
471150†	31° 54.2′	22° .7′	12725	265	14.4
471161†	31° 54.3′	21° 59.5′	14175	265	12.5
471170†	31° 54.5′	21° 58.2′	15995	265	10.4
471181†	31° 54.6′	21° 57.0′	17783	265	8.6
471190†	31° 54.8′	21° 56.2′	19395	265	7.3
471201†	31° 55.2′	21° 54.9′	22336	265	5.1
481010	31° 54.9′	21° 49.5′	30991	265	5.2
481021	31° 52.7′	21° 49.2′	33721	265	8.6
481030	31° 50.7′	21° 49.4′	35689	265	11.7
481041	31° 49.0′	21° 49.6′	37339	265	14.6
481050	31° 47.7′	21° 49.4′	38913	265	17.0
481061	31° 45.0′	21° 47.5′	43959	265	22.6
481070	31° 43.9′	21° 46.4′	46425	265	25.1
481090	31° 42.1′	21° 44.9′	49649	265	29.1
481101	31° 41.8′	21° 44.6′	50283	265	29.8
481110	31° 39.3′	21° 43.2′	54326	265	34.9
481121	31° 39.0′	21° 43.0′	54852	265	35.5
481130	31° 38.7′	21° 42.8′	55363	265	36.1

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
481141	31° 38.4′	21° 42.7′	55937	265	36.7
481150	31° 38.1′	21° 42.5′	56468	265	37.3
481161	31° 37.3′	21° 41.7′	58131	265	39.2
481170	31° 37.1′	21° 41.5′	58589	265	39.7
481181	31° 36.3′	21° 40.5′	60454	265	41.7
481190	31° 35.6′	21° 39.5′	62283	265	43.5
481200	31° 32.1′	21° 35.1′	71054	265	52.6
481211	31° 30.8′	21° 33.6′	74406	265	55.8
501010*	31° 53.7′	21° 48.3′	35536	266	8.6
501021*	31° 53.3′	21° 48.7′	38761	266	8.5
502011*	31° 53.3′	21° 48.7′	38761	266	8.5
511010*	31° 54.2′	21° 53.1′	50029	266	3.5
511021*	31° 53.3′	21° 54.6′	58505	266	5.7
521010*	31° 55.1′	21° 59.5′	76714	266	10.0
521021*	31° 55.1′	21° 59.4′	80162	266	9.8
541010‡	31° 54.0′	22° 7.0′	18267	267	21.5
541021‡	31° 53.9′	22° 7.4′	19579	267	22.2
551010‡	31° 51.6′	22° 14.5′	38652	267	33.7
551021‡	31° 51.4′	22° 14.8′	40426	267	34.2
571010‡	31° 53.4′	22° 26.1′	67792	267	50.8
571021‡	31° 53.2′	22° 26.2′	70282	267	51.0
581010‡	31° 52.7′	22° 33.1′	83552	267	61.7
581021‡	31° 52.7′	22° 33.1′	83559	267	61.7
582010‡	31° 52.4′	22° 32.2′	410	268	60.3
582021‡	31° 52.5′	22° 31.6′	3353	268	59.3
601010*	32° 7.6′	21° 52.7′	34350	268	22.7
601021*	32° 6.9′	21° 52.9′	36286	268	21.4
611010*	31° 44.0′	21° 60.0′	47467	268	22.8
611021*	31° 44.3′	21° 59.5′	50322	268	21.9
621010‡	31° 47.4′	21° 57.3′	53788	268	15.4
621021‡	31° 47.6′	21° 57.1′	55737	268	14.9
691010‡	31° 51.8′	21° 47.1′	40027	272	16.2
691021‡	31° 52.2′	21° 47.4′	41050	272	15.6
691030‡	31° 52.2′	21° 47.4′	41055	272	15.6
691041‡	31° 53.8′	21° 49.3′	45568	272	12.4
691050‡	31° 53.8′	21° 49.4′	45662	272	12.2
691061‡	31° 54.1′	21° 49.8′	47976	272	11.7
701010†	31° 57.5′	21° 54.3′	56172	272	8.3
701021†	31° 56.5′	21° 53.4′	58449	272	7.9
701030†	31° 56.1′	21° 53.1′	59206	272	7.9
701041†	31° 55.6′	21° 52.6′	60344	272	8.1
701050†	31° 55.1′	21° 52.2′	61265	272	8.4
701061†	31° 54.5′	21° 51.7′	62435	272	8.9
701070†	31° 53.1′	21° 50.7′	64822	272	10.5
701081†	31° 52.2′	21° 50.3′	66287	272	11.5

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
701090†	31° 51.5′	21° 50.0′	67339	272	12.3
701101†	31° 48.8′	21° 50.0′	71829	272	14.8
701110†	31° 48.1′	21° 49.9′	73272	272	15.8
701121†	31° 47.3′	21° 49.6′	74822	272	17.1
701130†	31° 46.3′	21° 49.4′	76784	272	18.7
701141†	31° 45.6′	21° 49.2′	78127	272	19.8
701150†	31° 45.1′	21° 49.1′	79061	272	20.7
701161†	31° 43.7′	21° 48.9′	81660	272	22.9
701170†	31° 43.6′	21° 48.9′	81709	272	23.0
701181†	31° 43.1′	21° 48.7′	82631	272	24.0
701190†	31° 43.0′	21° 48.7′	82726	272	24.1
701201†	31° 41.9′	21° 48.0′	84406	272	26.4
701210†	31° 41.7′	21° 47.9′	84829	272	26.8
701221†	31° 41.5′	21° 47.8′	85211	272	27.2
701230†	31° 40.4′	21° 47.2′	440	273	29.4
701241†	31° 40.2′	21° 47.0′	744	273	29.9
711010*	31° 54.7′	21° 58.6′	16425	273	2.5
711021*	31° 54.5′	21° 58.7′	17760	273	2.3
721010*	31° 55.0′	21° 59.0′	31544	273	3.3
721021*	31° 54.6′	21° 58.8′	33162	273	2.5
731010*	31° 51.7′	22° 13.5′	49260	273	24.7
731021*	31° 51.4′	22° 13.7′	51194	273	25.1
741010*	31° 52.0′	22° 13.3′	55330	273	24.2
741021*	31° 51.9′	22° 13.1′	57067	273	23.9
751010*	31° 52.3′	22° 14.3′	63290	273	25.7
751021*	31° 52.1′	22° 14.3′	64776	273	25.7
761010*	31° 51.9′	22° 13.6′	72934	273	24.5
761021*	31° 51.5′	22° 15.1′	80136	273	26.8
771010*	31° 52.7′	22° 13.0′	20892	274	23.0
771021*	31° 52.9′	22° 13.5′	22425	274	23.7
781010*	31° 52.7′	22° 11.2′	32814	274	20.0
781021*	31° 51.2′	22° 13.8′	34410	274	24.3
791010*	31° 53.4′	21° 42.2′	49143	274	25.8
791021*	31° 52.9′	21° 42.4′	50818	274	25.5
801010*	31° 53.5′	21° 48.3′	60635	274	16.4
801021*	31° 53.1′	21° 48.9′	62369	274	15.4
811010‡	31° 54.4′	21° 53.4′	70244	274	8.9
811021‡	31° 54.4′	21° 53.4′	72273	274	8.9
821010‡	31° 54.5′	21° 58.4′	80990	274	3.0
821021‡	31° 54.6′	21° 59.0′	83415	274	3.1
831010*	31° 55.4′	21° 59.6′	13512	275	4.8
831021*	31° 56.8′	21° 59.0′	15698	275	7.3
831030*	31° 57.7′	21° 58.9′	16910	275	9.0
831041*	31° 59.6′	21° 58.9′	19408	275	12.5
831050*	32° .3′	21° 59.0′	20235	275	13.8

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
831061*	32° 4.0′	21° 59.0′	24521	275	20.7
832010*	32° 6.3′	21° 58.2′	27346	275	25.0
832021*	32° 7.6′	21° 57.4′	29438	275	27.6
832030*	32° 8.0′	21° 57.2′	30214	275	28.3
832041*	32° 8.4′	21° 57.1′	31020	275	29.1
832050*	32° 8.5′	21° 57.1′	31251	275	29.3
832061*	32° 8.8′	21° 57.1′	32087	275	29.9
832070*	32° 9.0′	21° 57.2′	32778	275	30.2
832081*	32° 9.3′	21° 57.2′	33455	275	30.8
832090*	32° 9.6′	21° 57.1′	33987	275	31.4
832101*	32° 9.8′	21° 57.1′	34390	275	31.7
832110*	32° 10.1′	21° 57.1′	35081	275	32.3
832121*	32° 10.6′	21° 57.2′	36061	275	33.2
832130*	32° 11.1′	21° 57.2′	37004	275	34.1
832141*	32° 11.2′	21° 57.2′	37251	275	34.3
832150*	32° 11.3′	21° 57.2′	37604	275	34.5
832161*	32° 11.5′	21° 57.2′	37969	275	34.9
832170*	32° 11.7′	21° 57.3′	38425	275	35.2
832181*	32° 12.0′	21° 57.3′	38868	275	35.8
832190*	32° 12.4′	21° 57.3′	39541	275	36.6
832201*	32° 13.4′	21° 57.6′	41397	275	38.4
832210*	32° 13.9′	21° 57.7′	42442	275	39.3
832221*	32° 14.5′	21° 57.8′	43660	275	40.4
832230*	32° 15.0′	21° 57.9′	44508	275	41.4
832241*	32° 15.6′	21° 58.1′	45640	275	42.5
832250*	32° 16.5′	21° 58.1′	47113	275	44.1
832261*	32° 17.6′	21° 58.2′	49127	275	46.2
832270*	32° 18.2′	21° 58.5′	50093	275	47.3
832281*	32° 19.4′	21° 58.8′	52196	275	49.5
832290*	32° 19.6′	21° 58.9′	52639	275	49.9
833011*	32° 21.2′	21° 59.5′	55239	275	52.9
833020*	32° 21.9′	21° 59.7′	56371	275	54.2
833031*	32° 23.3′	21° 59.8′	58516	275	56.9
833040*	32° 24.1′	21° 59.8′	59563	275	58.3
833051*	32° 25.5′	21° 59.6′	61498	275	61.0
833060*	32° 26.2′	21° 59.4′	62540	275	62.3
833071*	32° 27.5′	21° 58.9′	64537	275	64.7
833080*	32° 27.7′	21° 58.8′	64837	275	65.1
833091*	32° 28.9′	21° 58.3′	66858	275	67.4
833100*	32° 29.5′	21° 58.1′	67884	275	68.5
833111*	32° 30.8′	21° 57.8′	70070	275	71.0
833120*	32° 31.5′	21° 57.6′	71126	275	72.3
833131*	32° 33.3′	21° 57.3′	73585	275	75.7
833140*	32° 34.1′	21° 57.0′	74754	275	77.2
833151*	32° 35.8′	21° 56.5′	77296	275	80.4

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
833160*	32° 36.7′	21° 56.3′	78608	275	82.1
833171*	32° 38.1′	21° 56.1′	80890	275	84.8
833180*	32° 38.6′	21° 56.0′	81762	275	85.7
834011*	32° 40.1′	21° 55.6′	84440	275	88.6
834020*	32° 40.7′	21° 55.4′	85544	275	89.7
834031*	32° 41.9′	21° 54.9′	1618	276	92.1
841010*	32° 53.4′	21° 55.2′	9047	276	113.5
841021*	32° 52.4′	21° 54.3′	16649	276	111.8
851010	32° 12.1′	21° 54.9′	32820	276	37.3
851021	32° 11.3′	21° 55.0′	33750	276	35.9
851030	32° 10.9′	21° 54.9′	34377	276	35.2
851041	32° 10.4′	21° 54.6′	35242	276	34.4
851050	32° 10.0′	21° 54.5′	35970	276	33.7
851061	32° 9.5′	21° 54.1′	36833	276	33.0
851070	32° 9.3′	21° 54.3′	36913	276	32.6
851081	32° 9.1′	21° 53.8′	37728	276	32.4
851090	32° 8.9′	21° 53.3′	38360	276	32.3
851101	32° 8.5′	21° 52.5′	39597	276	32.1
861010	32° 9.9′	21° 49.4′	43681	276	36.5
861021	32° 9.6′	21° 49.0′	44325	276	36.3
861030	32° 9.4′	21° 48.7′	44856	276	36.2
861041	32° 9.2′	21° 48.4′	45331	276	36.2
861050	32° 8.9′	21° 48.1′	46008	276	35.9
861061	32° 8.6′	21° 47.9′	46568	276	35.6
861070	32° 8.3′	21° 47.6′	47217	276	35.4
861081	32° 8.0′	21° 47.3′	47822	276	35.2
861090	32° 7.7′	21° 47.0′	48483	276	35.1
861101	32° 7.3′	21° 46.8′	49098	276	34.7
861110	32° 7.0′	21° 46.7′	49830	276	34.3
861121	32° 6.8′	21° 46.6′	50182	276	34.1
861130	32° 6.5′	21° 46.4′	50830	276	33.9
861141	32° 6.3′	21° 46.4′	51255	276	33.6
861150	32° 6.0′	21° 46.3′	51891	276	33.3
861161	32° 5.8′	21° 46.1′	52312	276	33.2
861181	32° 5.3′	21° 45.7′	53516	276	33.0
861201	32° 4.8′	21° 45.3′	54701	276	32.8
861221	32° 3.9′	21° 44.2′	57131	276	32.9
861241	32° 3.5′	21° 43.3′	58495	276	33.6
861261	32° 3.3′	21° 42.7′	59447	276	34.1
861290	32° 2.6′	21° 40.4′	63262	276	36.4
871010	31° 55.3′	21° 58.9′	74155	276	6.1
871021	31° 55.3′	21° 58.7′	75795	276	6.2
871030	31° 55.2′	21° 58.3′	77099	276	6.3
871041	31° 55.1′	21° 57.6′	78700	276	6.8
871050	31° 55.3′	21° 56.1′	80925	276	8.7

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
871061	31° 55.4′	21° 55.0′	82287	276	10.2
871070	31° 55.6′	21° 54.4′	83316	276	11.2
871081	31° 55.8′	21° 53.4′	84654	276	12.8
871090	31° 56.1′	21° 51.9′	580	277	15.1
871101	31° 56.1′	21° 50.3′	2936	277	17.4
871110	31° 56.0′	21° 48.8′	4632	277	19.5
871121	31° 55.9′	21° 46.7′	7217	277	22.6
871130	31° 55.8′	21° 45.3′	8950	277	24.7
871141	31° 55.9′	21° 43.4′	11469	277	27.6
871150	31° 55.9′	21° 42.4′	12828	277	29.2
871161	31° 55.7′	21° 41.5′	14077	277	30.5
871170	31° 55.5′	21° 40.5′	15551	277	32.0
871181	31° 55.3′	21° 39.6′	16697	277	33.3
871190	31° 55.0′	21° 38.7′	18028	277	34.6
871201	31° 54.6′	21° 37.4′	20299	277	36.6
871210	31° 54.3′	21° 35.6′	22531	277	39.4
871221	31° 54.3′	21° 34.7′	23711	277	40.8
871230	31° 54.3′	21° 33.4′	24930	277	42.8
871241	31° 54.4′	21° 32.1′	26008	277	44.9
871250	31° 54.5′	21° 30.5′	27207	277	47.4
871261	31° 54.3′	21° 28.4′	29348	277	50.7
871270	31° 54.1′	21° 27.8′	30508	277	51.6
871281	31° 53.5′	21° 27.4′	32000	277	52.2
871290	31° 53.0′	21° 27.1′	33195	277	52.7
871301	31° 52.5′	21° 27.0′	35311	277	52.8
871310	31° 52.5′	21° 27.0′	35314	277	52.8
871321	31° 52.7′	21° 25.4′	37738	277	55.4
871330	31° 52.9′	21° 24.6′	39048	277	56.7
871341	31° 53.4′	21° 23.1′	41019	277	59.1
881010*	31° 53.3′	21° 13.4′	49314	277	74.4
881021*	31° 53.3′	21° 12.1′	56590	277	76.5
891010*	31° 15.1′	21° 15.1′	71570	277	98.9
891021*	31° 14.9′	21° 14.2′	78500	277	100.2
901010	31° 5.6′	21° 13.5′	86369	277	113.2
901021	31° 4.6′	21° 13.9′	2355	278	114.2
901030	31° 3.7′	21° 13.8′	3992	278	115.6
901041	31° 2.5′	21° 13.5′	6245	278	117.6
901050	31° 1.6′	21° 13.1′	7900	278	119.3
901061	31° ′.3′	21° 12.8′	10161	278	121.4
901070	30° 59.8′	21° 12.7′	11217	278	122.2
901081	30° 58.4′	21° 12.9′	13734	278	124.1
901090	30° 57.7′	21° 12.9′	14958	278	125.1
901101	30° 56.6′	21° 13.0′	16928	278	126.6
901110	30° 55.7′	21° 13.0′	18351	278	127.9
901121	30° 54.5′	21° 13.1′	20234	278	129.6

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
901130	30° 53.9′	21° 13.3′	21365	278	130.3
901141	30° 53.0′	21° 13.4′	23125	278	131.6
901161	30° 52.2′	21° 13.5′	24801	278	132.7
901170	30° 52.1′	21° 13.5′	25002	278	132.9
901181	30° 51.7′	21° 13.5′	26005	278	133.5
901190	30° 51.6′	21° 13.5′	26236	278	133.6
901201	30° 51.3′	21° 13.4′	27196	278	134.2
901210	30° 51.2′	21° 13.4′	27428	278	134.3
901221	30° 50.7′	21° 13.2′	28410	278	135.3
901230	30° 50.2′	21° 13.2′	29690	278	136.0
901241	30° 49.0′	21° 13.2′	32018	278	137.8
911010*	30° 47.8′	22° 1.8′	47678	278	117.4
911021*	30° 46.8′	22° 2.0′	55155	278	119.1
921010	30° 16.4′	22° .4′	68830	278	174.5
921021	30° 15.3′	22° .7′	70573	278	176.5
921030	30° 14.7′	22° .7′	71642	278	177.6
921041	30° 13.4′	22° .7′	73816	278	179.9
921050	30° 12.6′	22° .5′	75080	278	181.4
921061	30° 11.2′	22° .3′	77348	278	183.9
921070	30° 10.7′	22° .3′	78234	278	184.8
921081	30° 10.2′	22° .4′	79097	278	185.7
921090	30° 9.9′	22° .5′	79659	278	186.2
921101	30° 9.5′	22° .6′	80292	278	186.9
921110	30° 9.4′	22° .6′	80605	278	187.1
921121	30° 8.0′	22° .8′	82950	278	189.6
921130	30° 7.6′	22° 1.0′	83770	278	190.4
921141	30° 7.2′	22° 1.0′	84453	278	191.1
921150	30° 6.8′	22° 1.1′	85013	278	191.8
921161	30° 6.4′	22° 1.1′	85712	278	192.5
921170	30° 6.1′	22° 1.1′	86120	278	193.1
921181	30° 5.7′	22° 1.1′	447	279	193.8
921190	30° 5.1′	22° 1.1′	1372	279	194.9
921201	30° 4.7′	22° 1.1′	2080	279	195.6
921210	30° 4.3′	22° 1.1′	2766	279	196.3
921221	30° 3.8′	22° 1.1′	3550	279	197.2
921230	30° 3.2′	22° 1.0′	4428	279	198.3
921241	30° 1.7′	22° .6′	6762	279	201.0
921250	30° .7′	22° .4′	8611	279	202.8
921261	30° .3′	22° .2′	9379	279	203.5
921270	29° 59.9′	22° .0′	10652	279	204.3
921281	29° 59.3′	21° 59.6′	12586	279	205.3
921290	29° 59.0′	21° 59.2′	13652	279	205.9
921301	29° 58.6′	21° 58.2′	15625	279	206.6
921310	29° 58.4′	21° 57.6′	16641	279	207.0
921321	29° 58.1′	21° 56.9′	17700	279	207.6

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
921330	29° 58.0′	21° 56.5′	18253	279	207.8
921341	29° 57.8′	21° 56.2′	18813	279	208.2
921350	29° 57.7′	21° 55.9′	19250	279	208.4
921361	29° 57.6′	21° 55.6′	19806	279	208.6
921370	29° 57.6′	21° 55.4′	20220	279	208.6
921381	29° 57.5′	21° 55.2′	20762	279	208.8
921390	29° 57.4′	21° 55.0′	21095	279	209.0
921401	29° 57.5′	21° 54.9′	21612	279	208.8
921410	29° 57.5′	21° 54.6′	22255	279	208.8
921421	29° 57.5′	21° 54.5′	22766	279	208.8
921430	29° 57.7′	21° 54.3′	23107	279	208.5
921441	29° 57.8′	21° 54.1′	23614	279	208.3
921450	29° 58.0′	21° 53.8′	24466	279	208.0
921461	29° 58.4′	21° 53.3′	25429	279	207.3
921470	29° 58.6′	21° 52.9′	26282	279	207.0
921481	29° 59.5′	21° 51.3′	27883	279	205.5
921490	29° 60.0′	21° 50.4′	28747	279	204.7
921501	30° .8′	21° 48.2′	30562	279	203.6
921510	30° 1.2′	21° 46.9′	31606	279	203.1

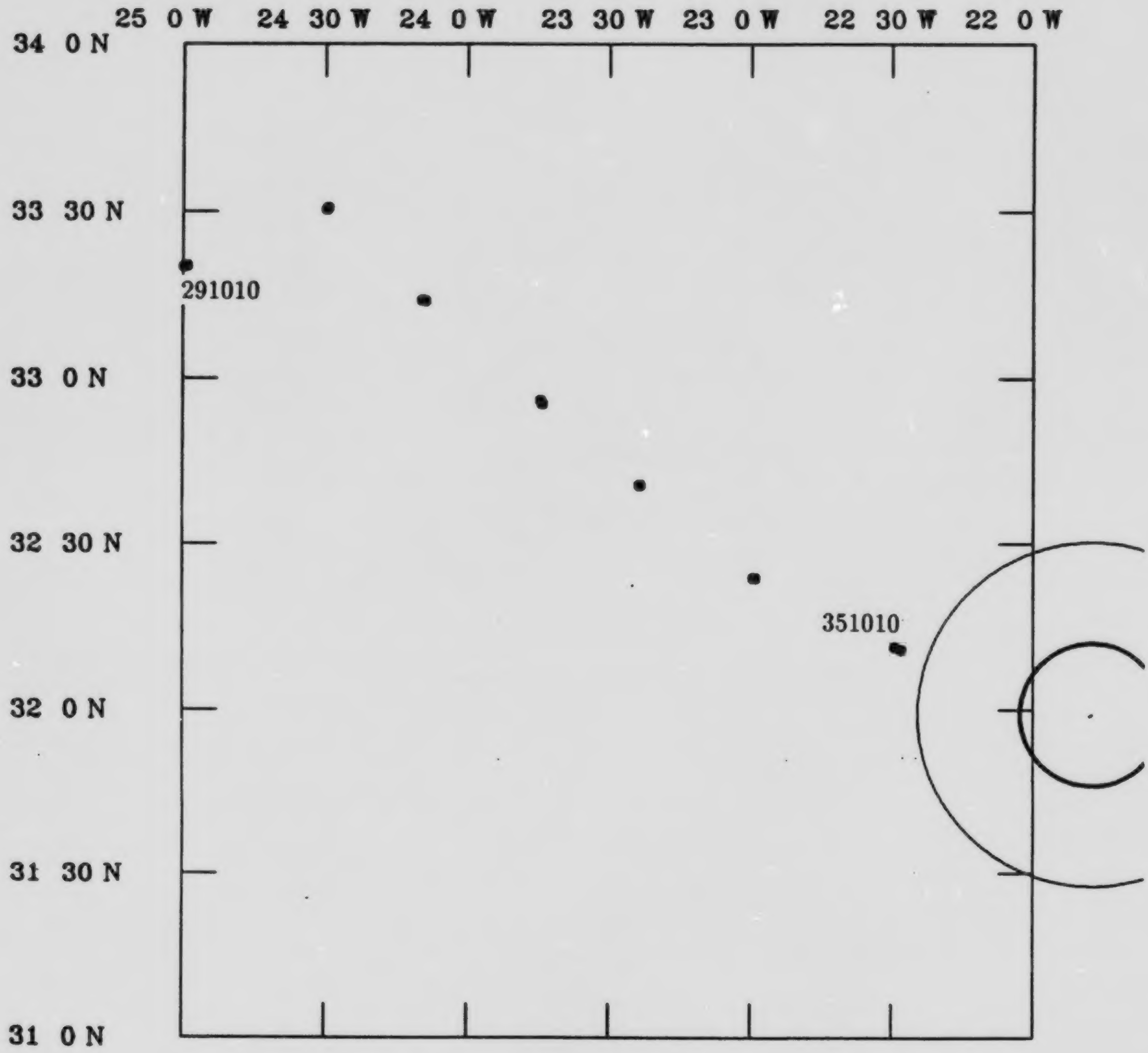
* Disagreement between bottle salinity samples and last up CTD salinity profile.

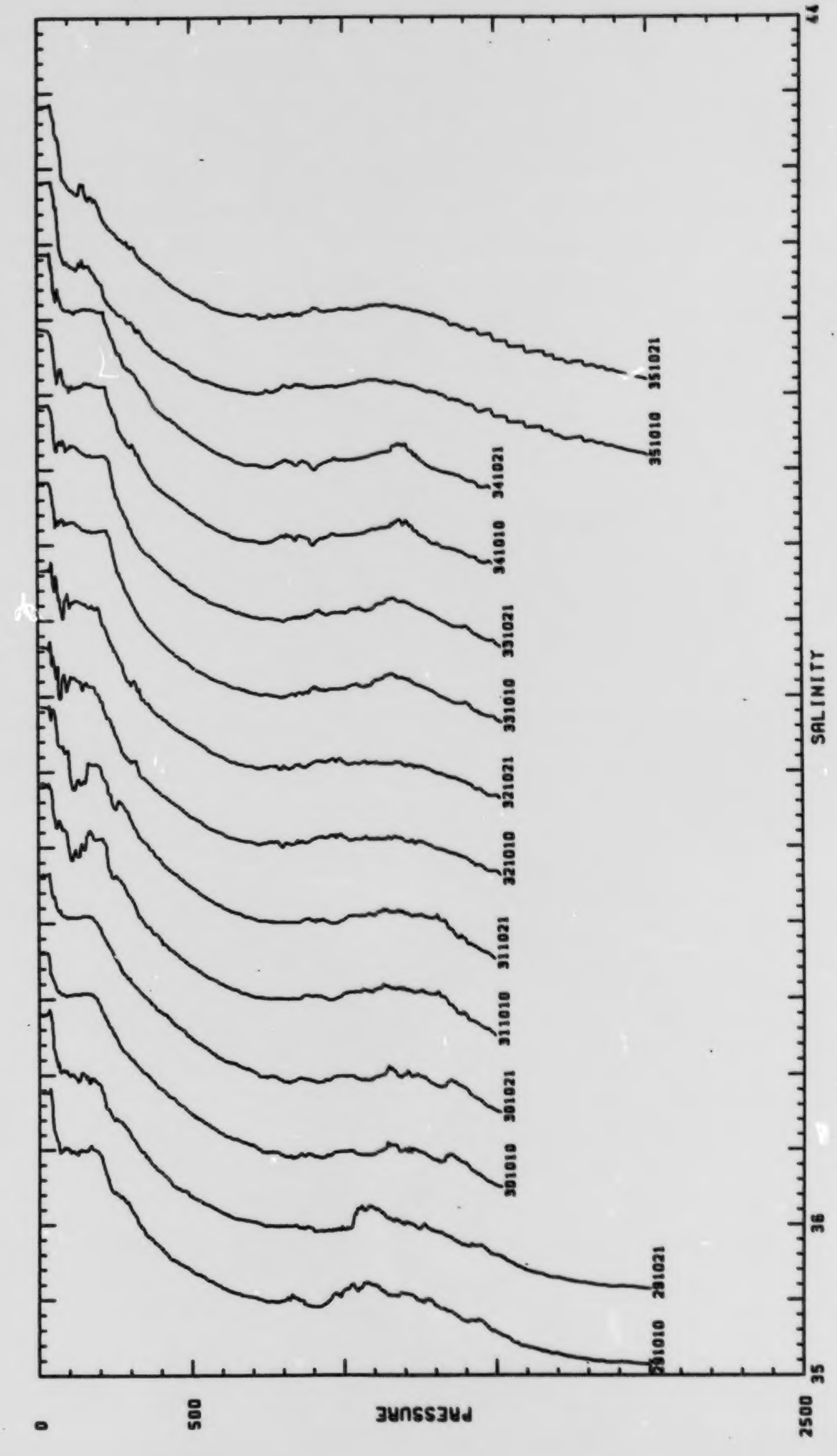
†No deep, but above 2000 *db*, bottle salinity samples available. Deep T–S profile agrees with T–S profiles of good stations.

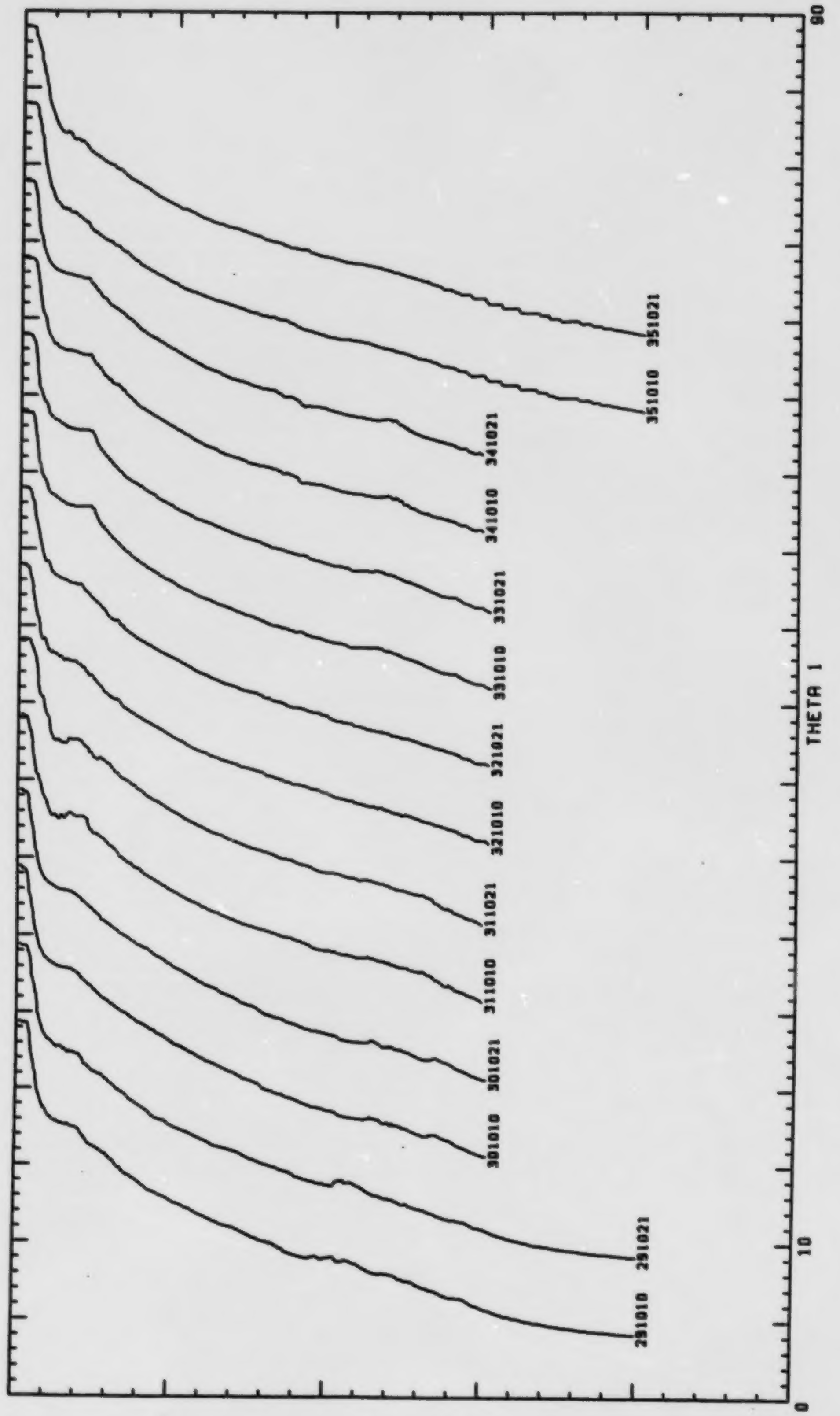
‡No deep, but above 2000 *db*, bottle salinity samples available. Deep T–S profiles disagrees with T–S profiles of good stations.

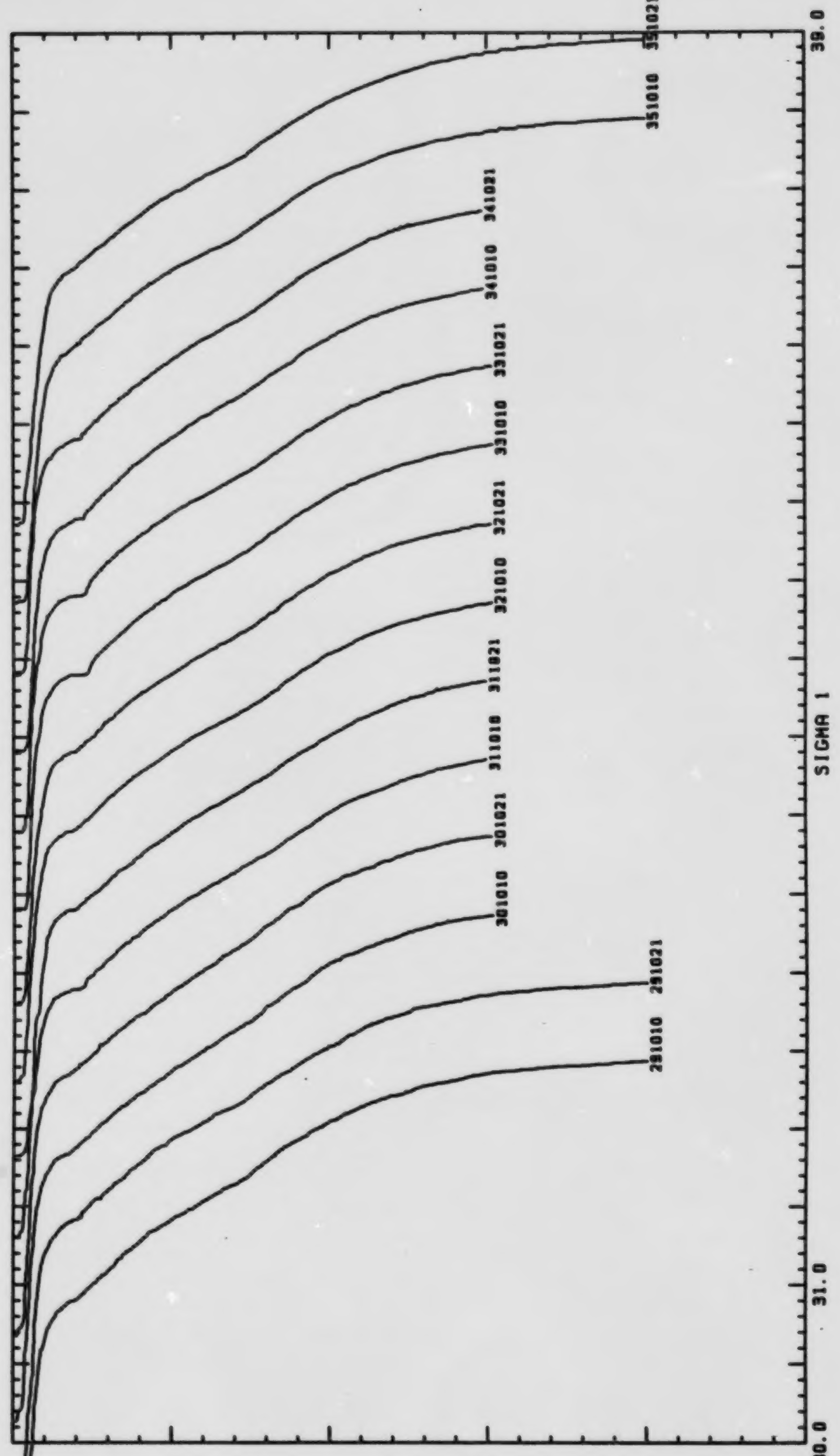
INTENTIALLY LEFT BLANK

Survey I : October 1984

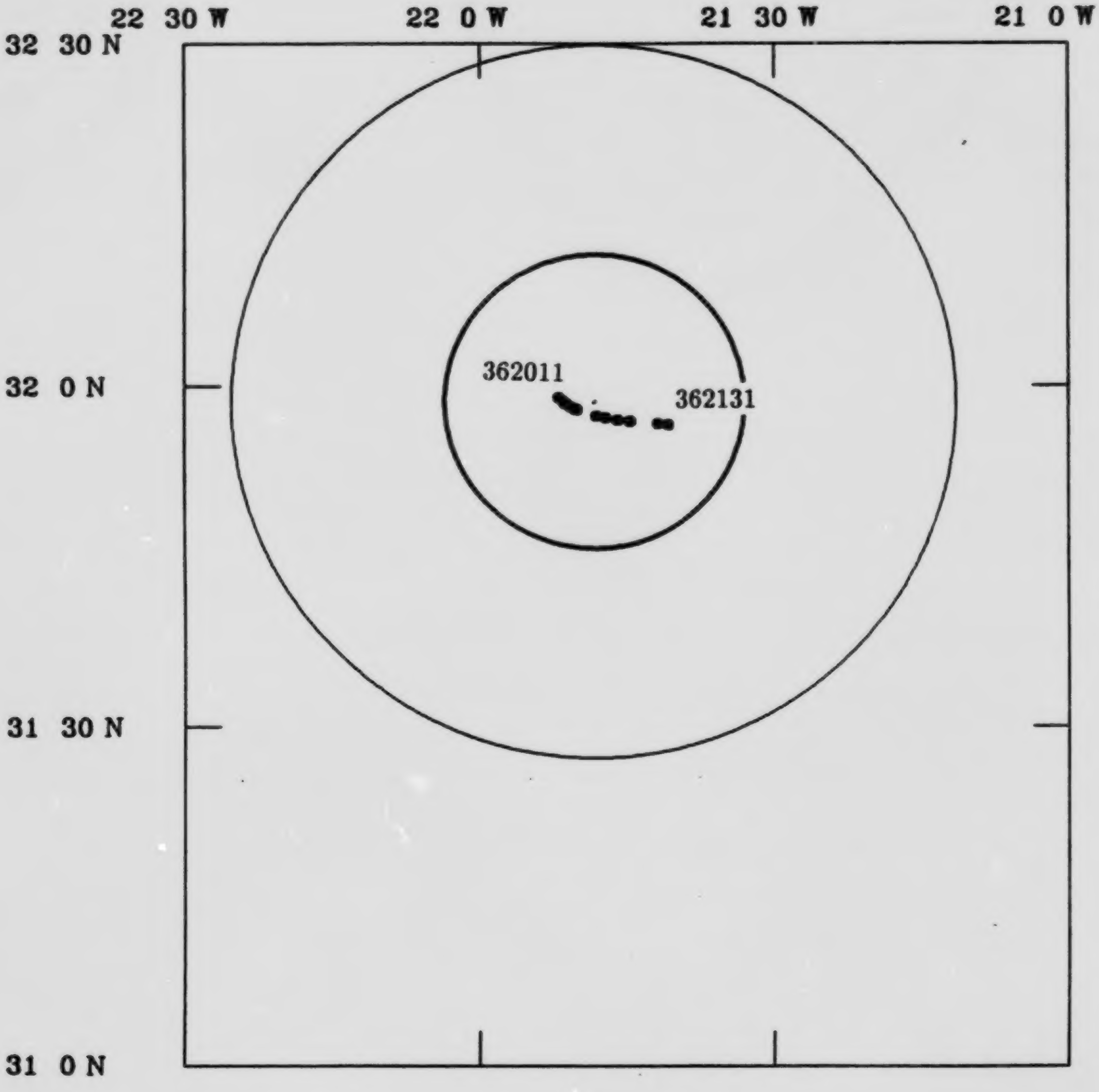


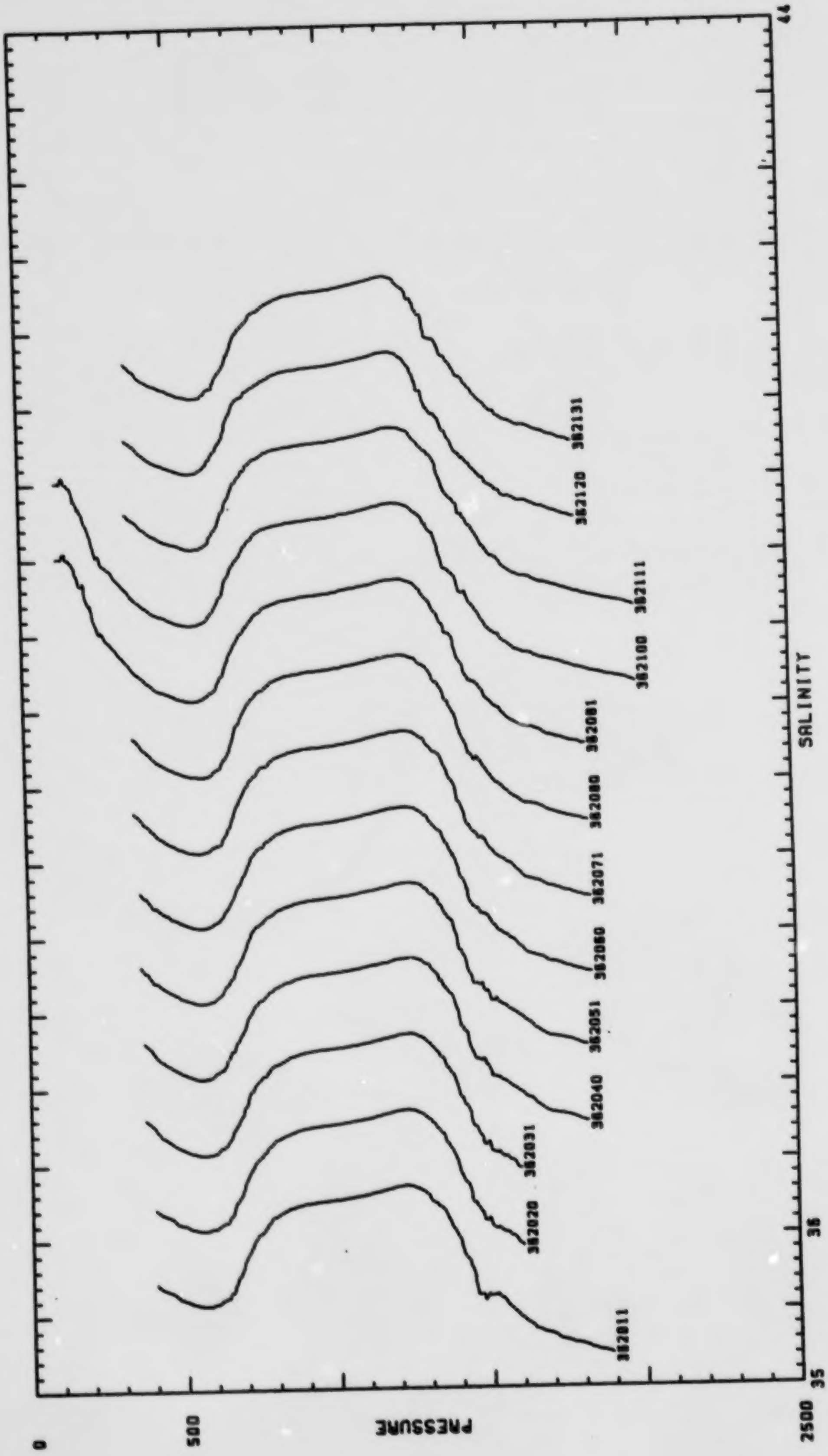

PRESSURE
0
500
2500
SALINITY
35
36
44
351021
351010
341021
341010
331021
331010
321021
321010
311021
311010
301021
301010
291021
291010

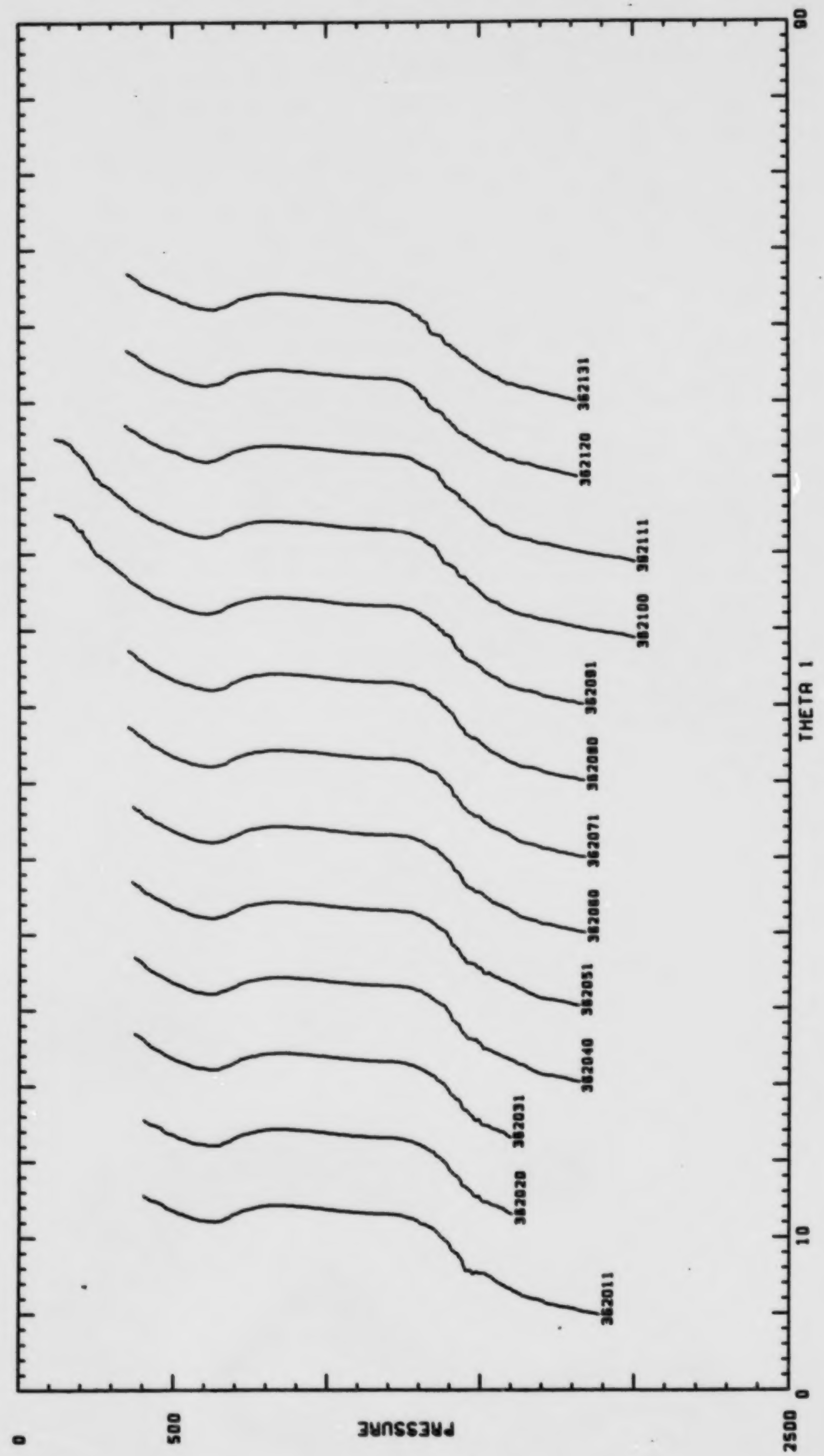

PRESSURE
0
500
2500
THETA 1
0
10
90
291010
291021
301010
301021
311010
311021
321010
321021
331010
331021
341010
341021
351010
351021

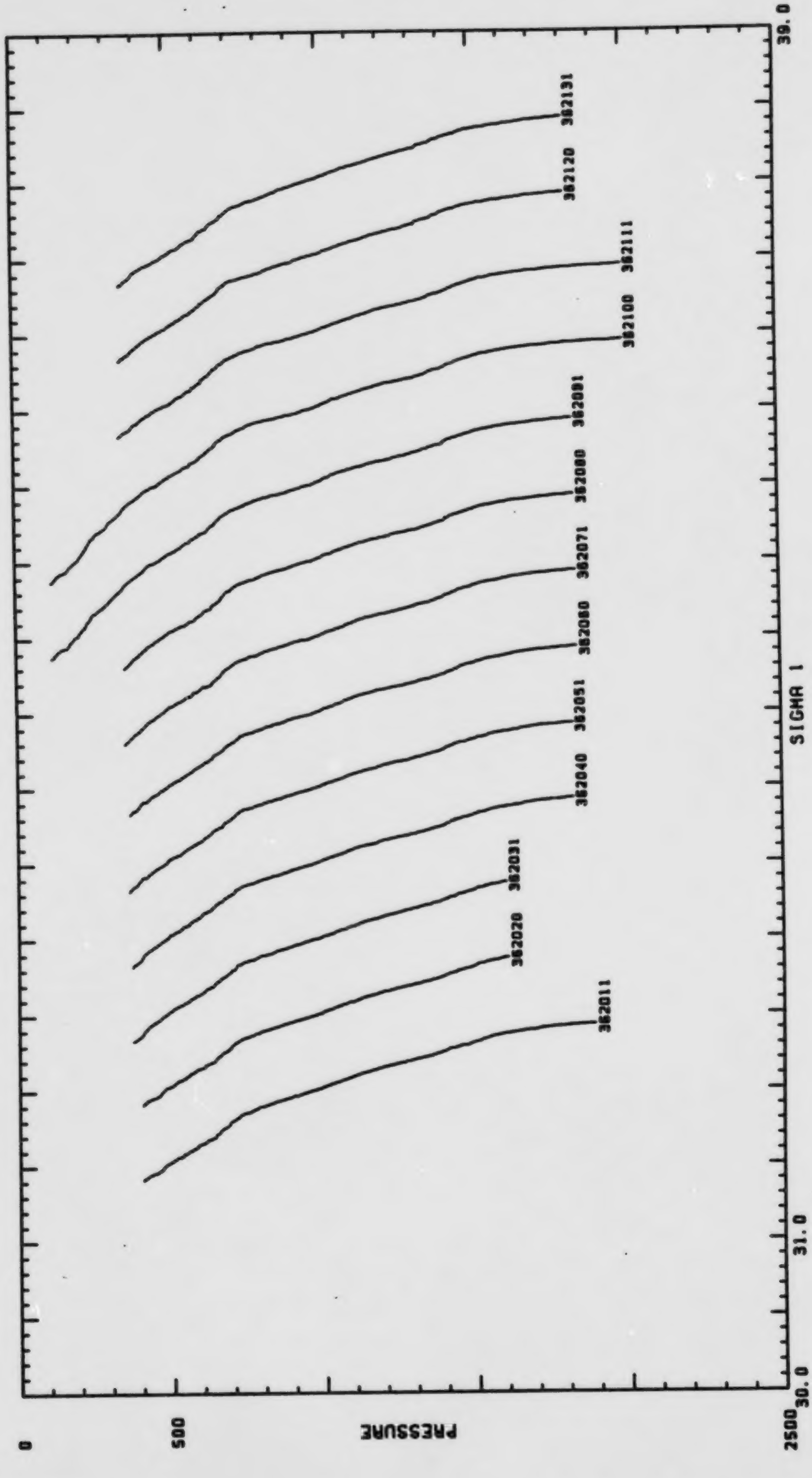

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
291010
291021
301010
301021
311010
311021
321010
321021
331010
331021
341010
341021
351010
351021

Survey I : October 1984

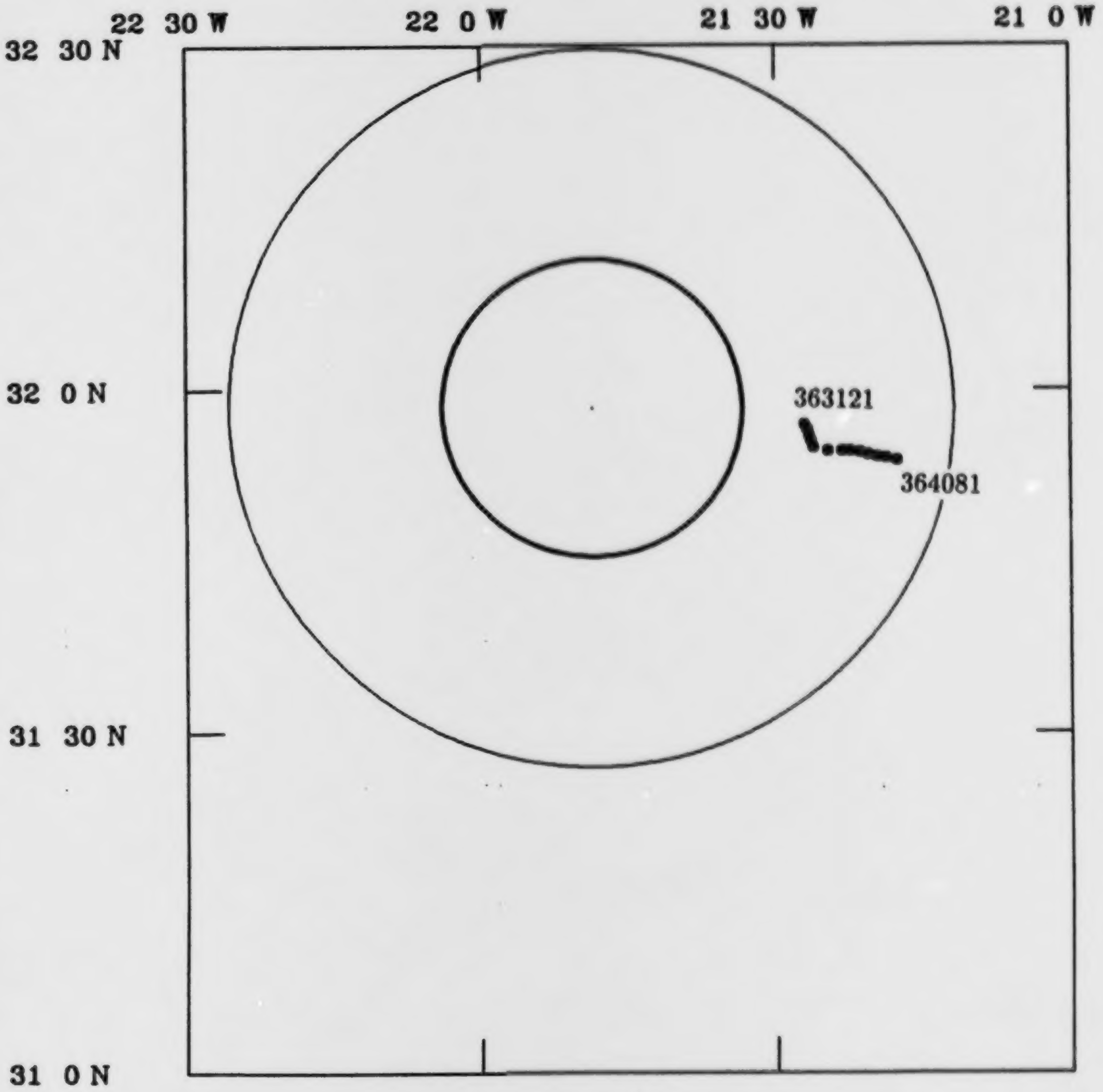


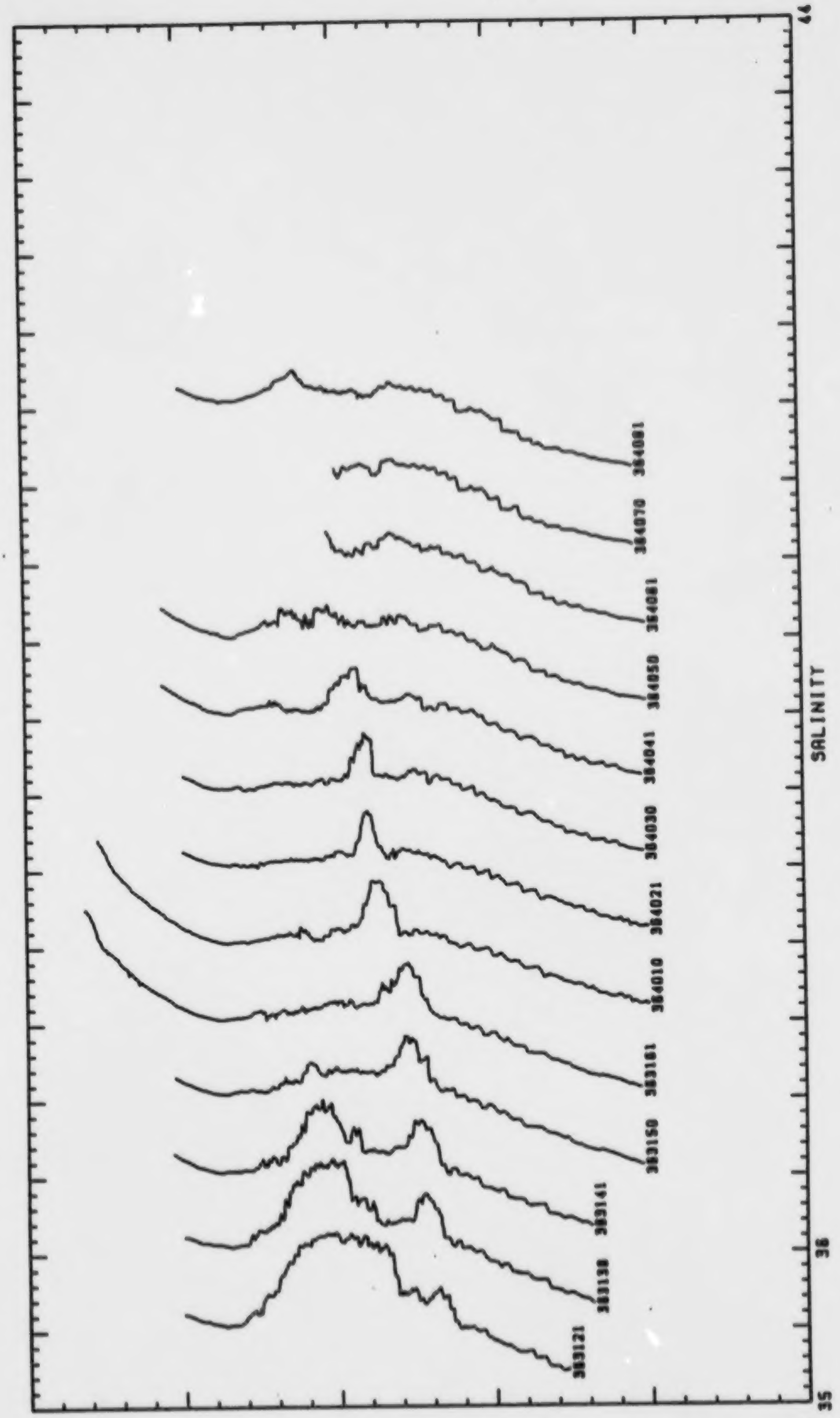

PRESSURE
0
500
2500
SALINITY
35
38
44
382011
382020
382031
382040
382051
382060
382071
382080
382081
382100
382111
382120
382131

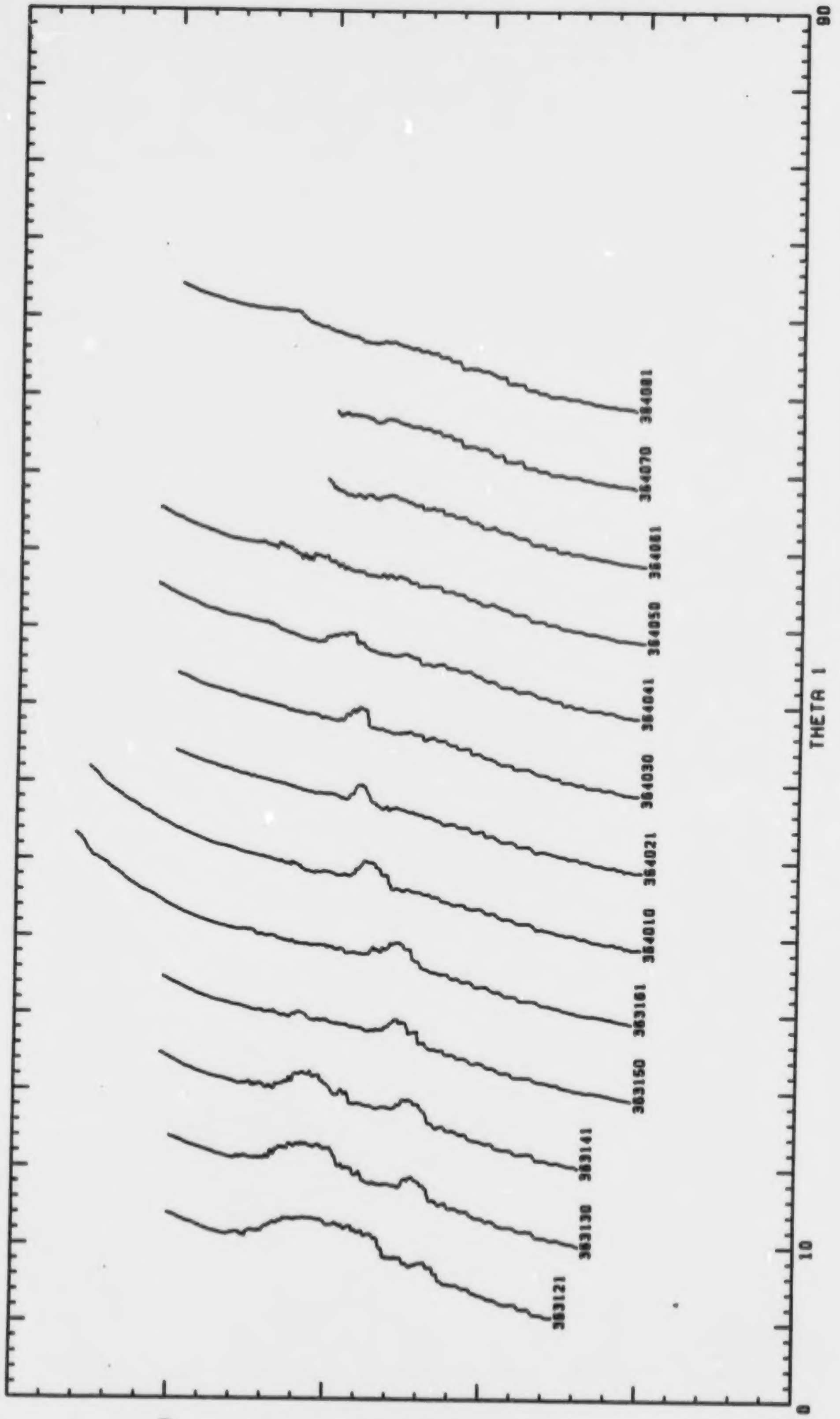

PRESSURE
0
500
2500
THETA 1
0
10
90
362011
362020
362031
362040
362051
362060
362071
362080
362081
362100
362111
362120
362131

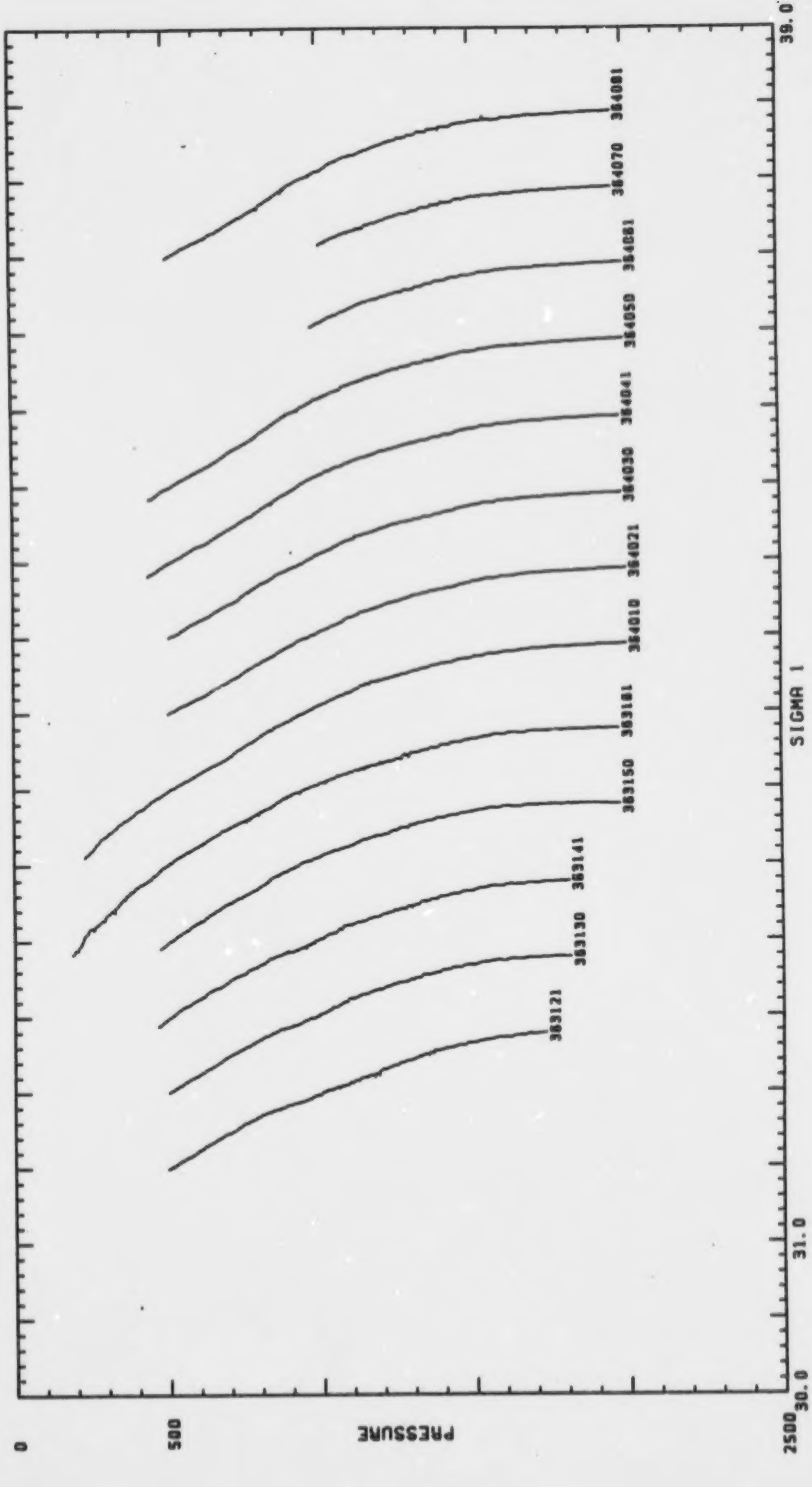

362131
362120
362111
362100
362091
362080
362071
362060
362051
362040
362031
362020
362011
SIGMA 1
30.0
31.0
39.0
PRESSURE
0
500
2500

Survey I : October 1984

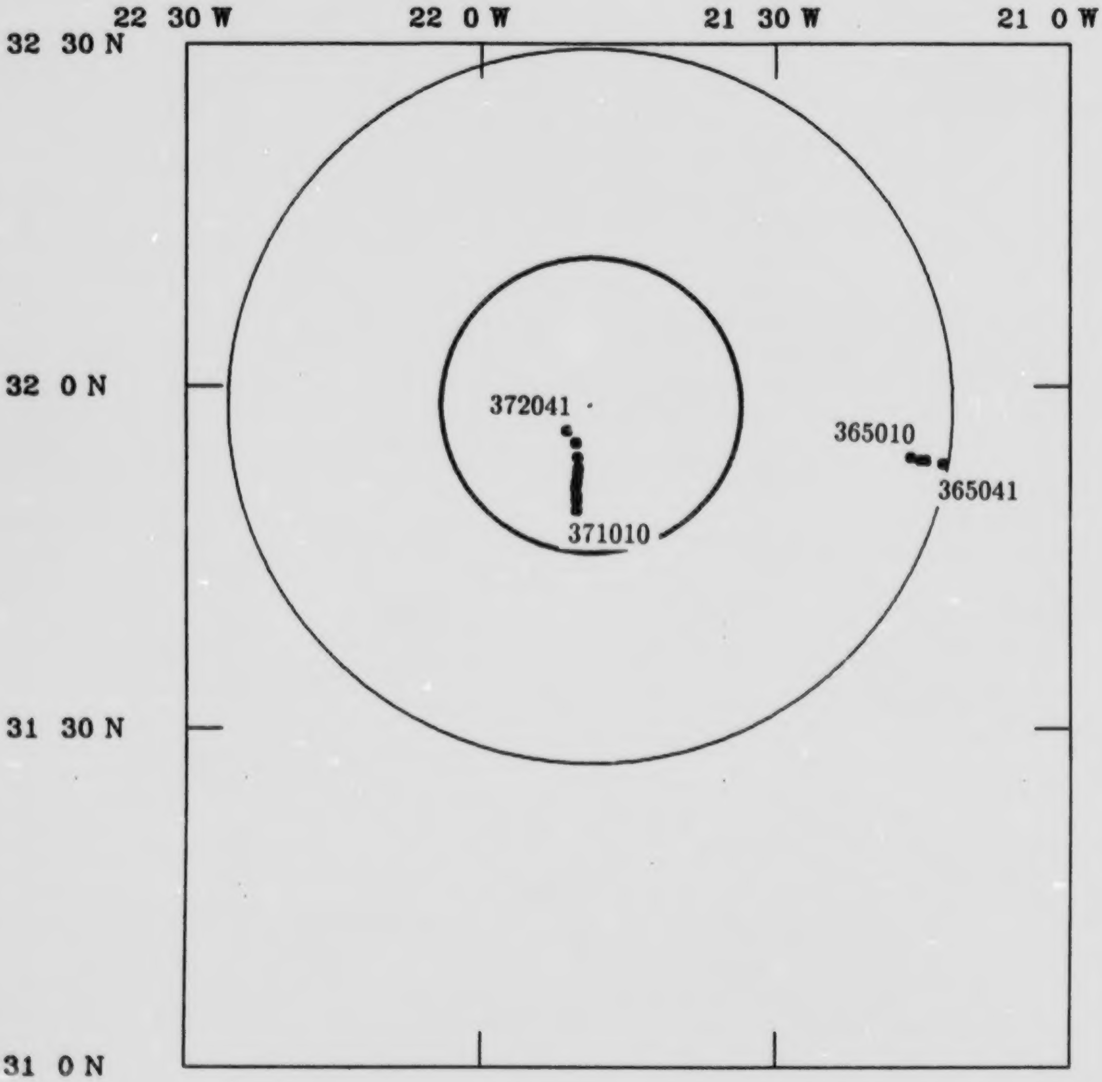


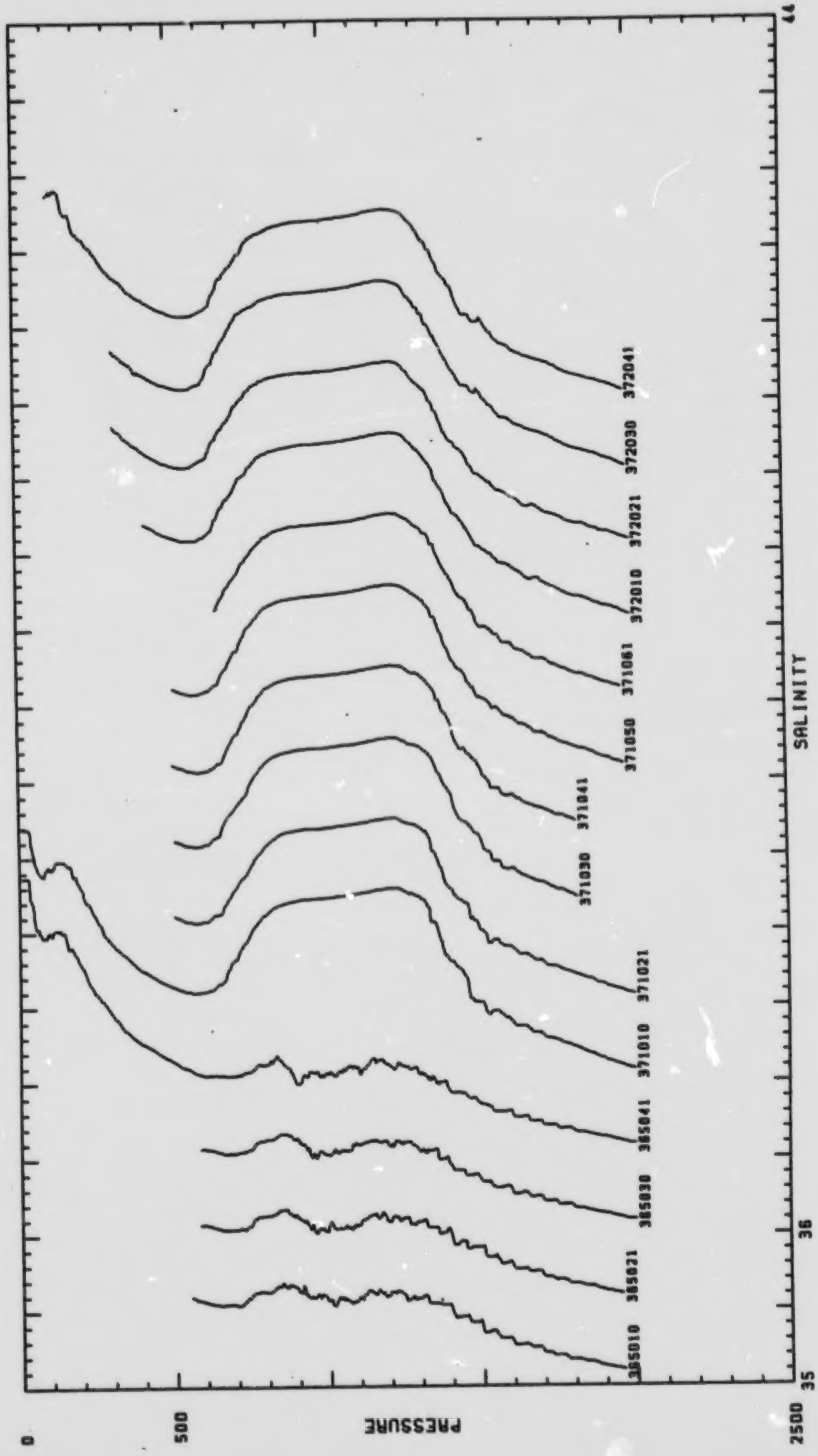

SALINITY
35
38
44
PRESSURE
0
500
2500
383121
383130
383141
383150
383161
384010
384021
384030
384041
384050
384061
384070
384081


PRESSURE
0
500
2500
THETA 1
0
10
90
383121
383130
383141
383150
383161
384010
384021
384030
384041
384050
384061
384070
384081

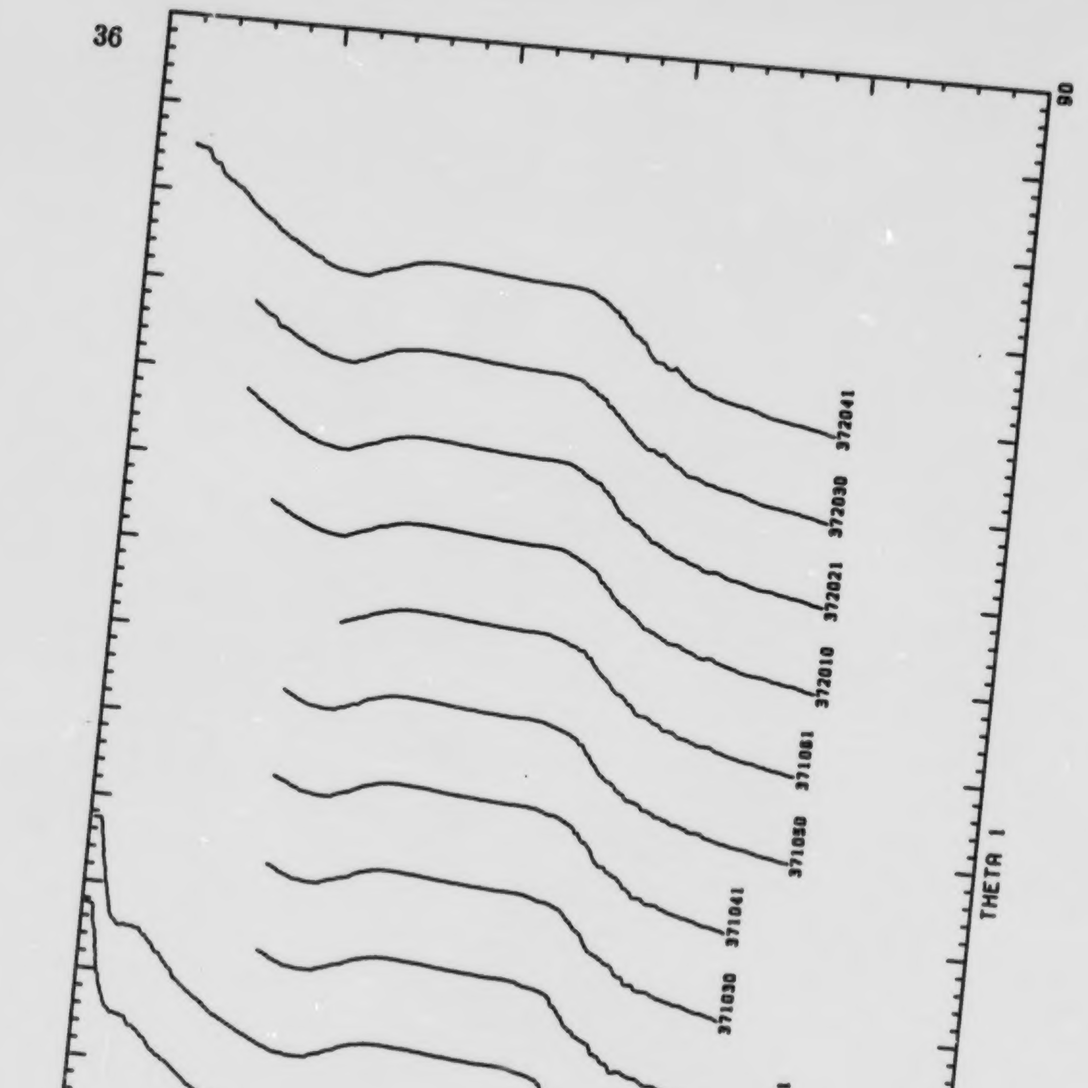

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
363121
363130
363141
363150
363181
364010
364021
364030
364041
364050
364061
364070
364081

Survey I : October 1984



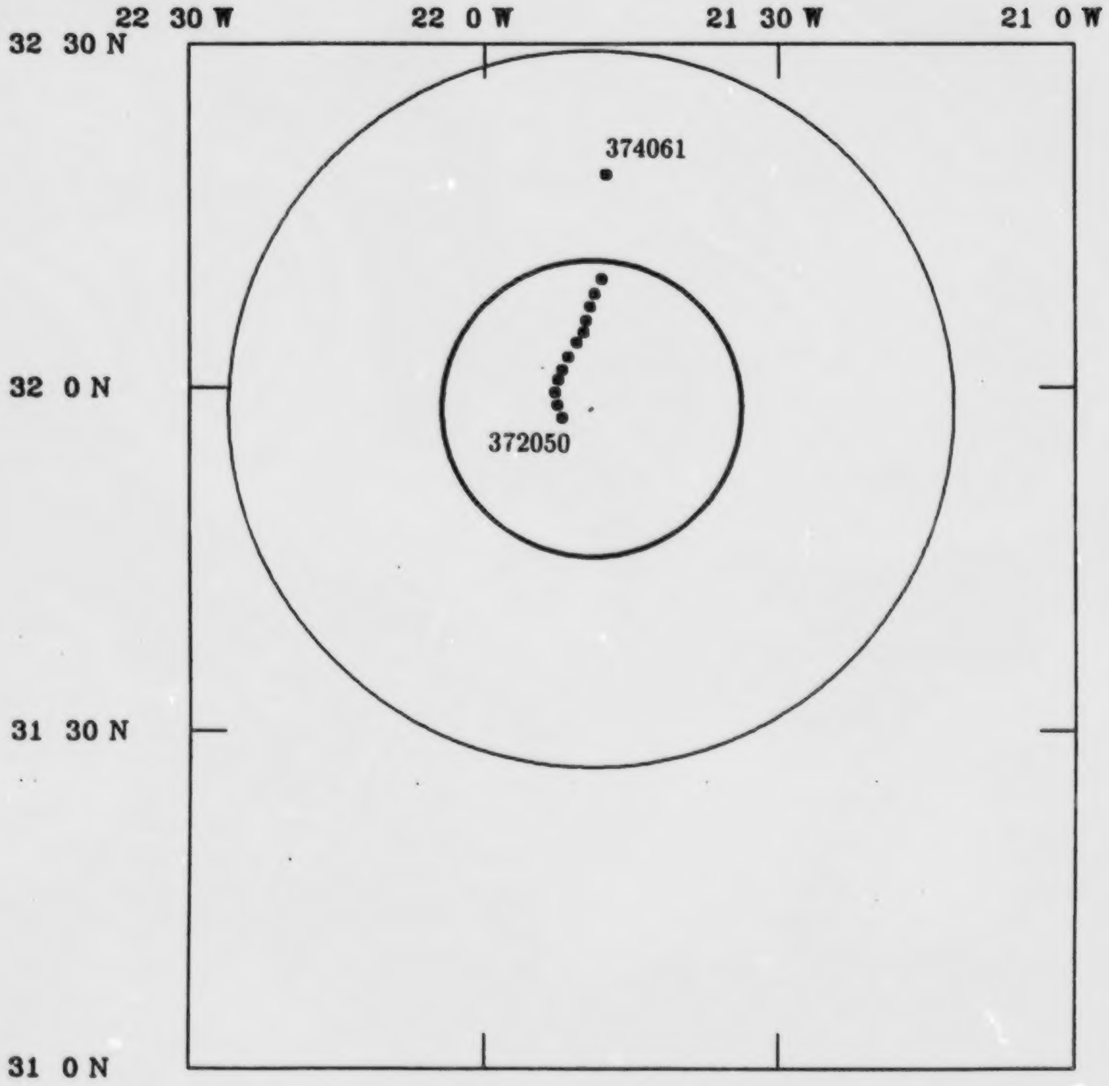


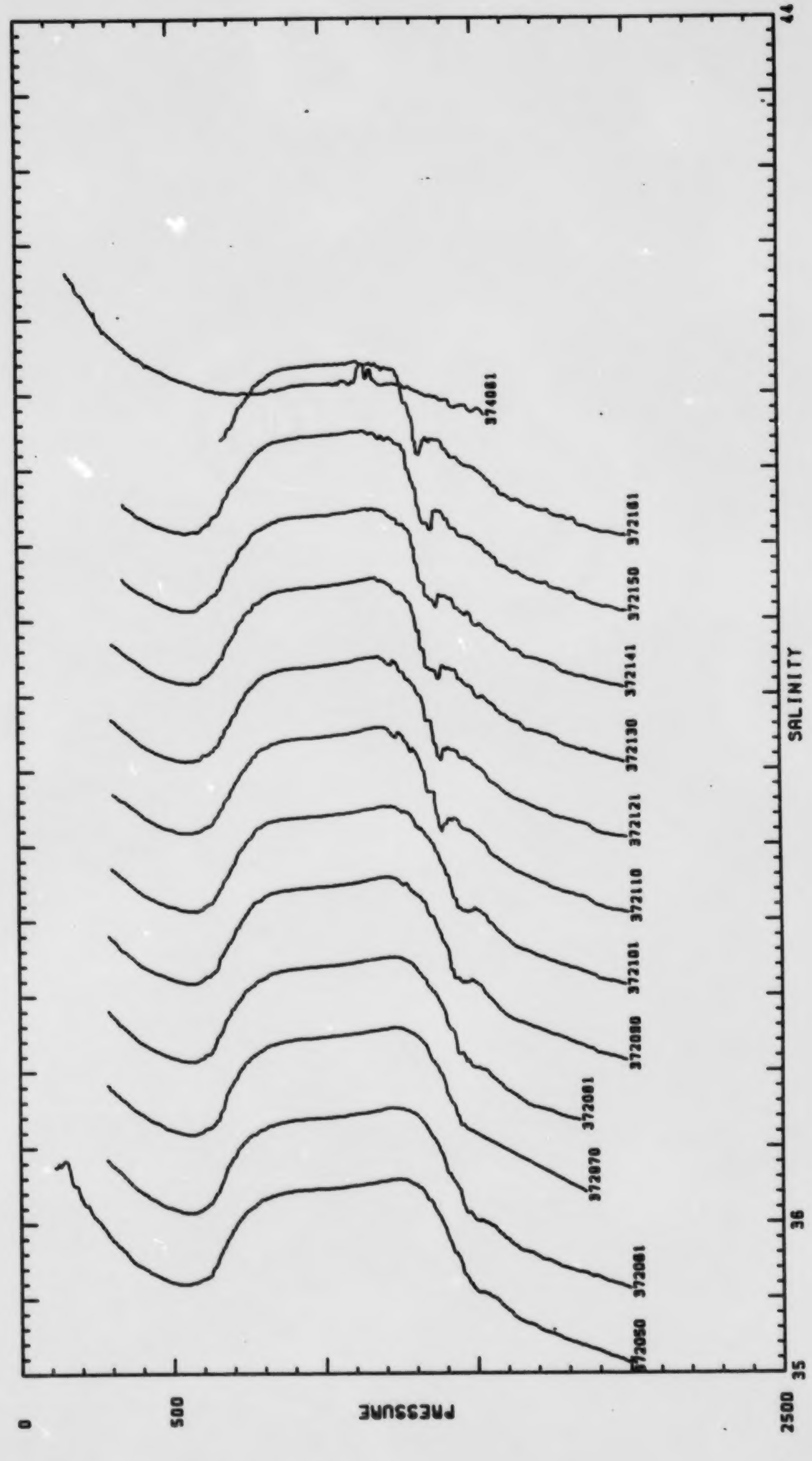
PRESSURE
0
500
2500
SALINITY
35
36
44
372041
372030
372021
372010
371061
371050
371041
371030
371021
371010
365041
365030
365021
365010

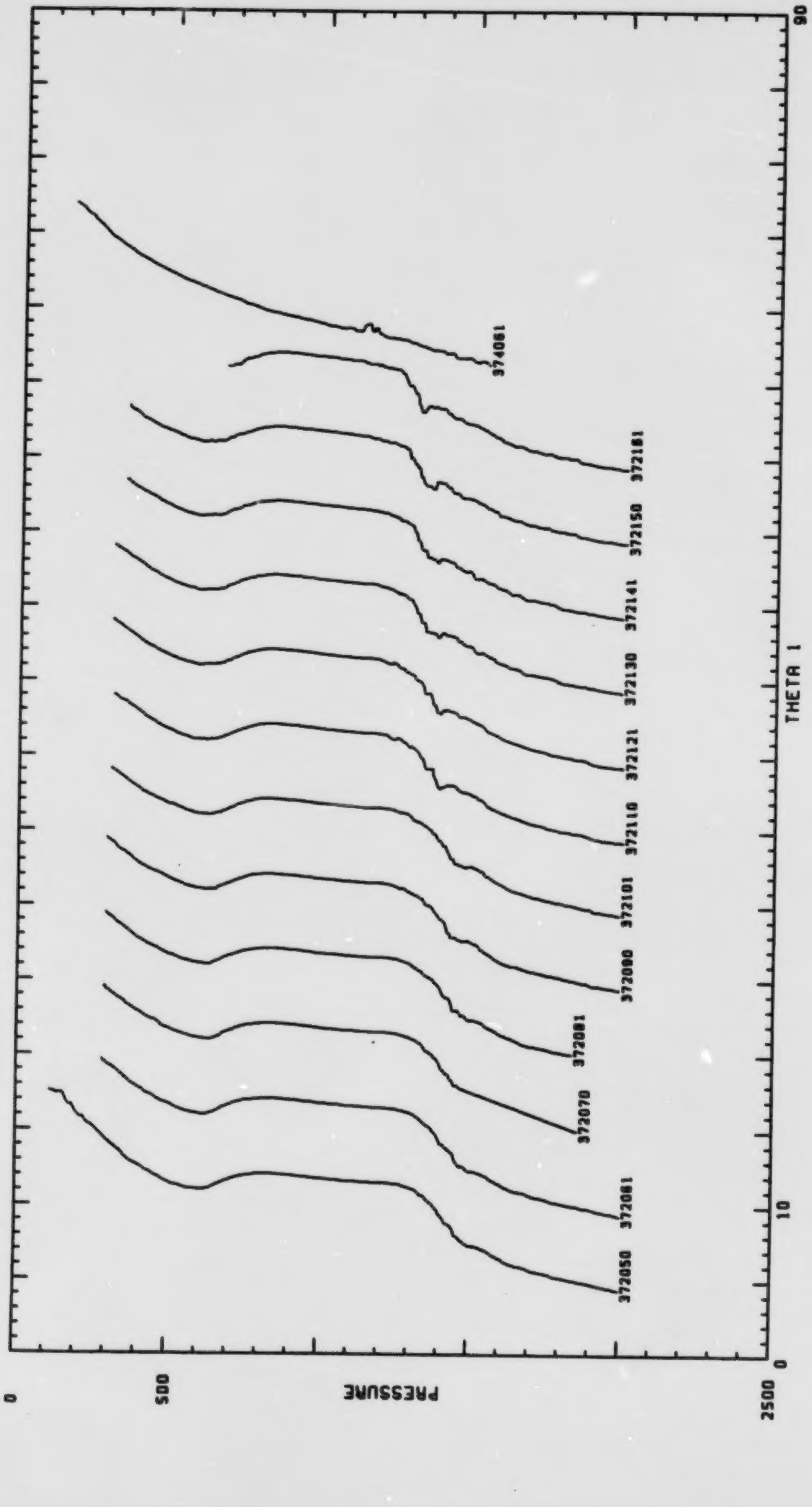

PRESSURE
0
500
2500
THETA 1
0
10
90
385010
385021
385030
385041
371010
371021
371030
371041
371050
371061
372010
372021
372030
372041

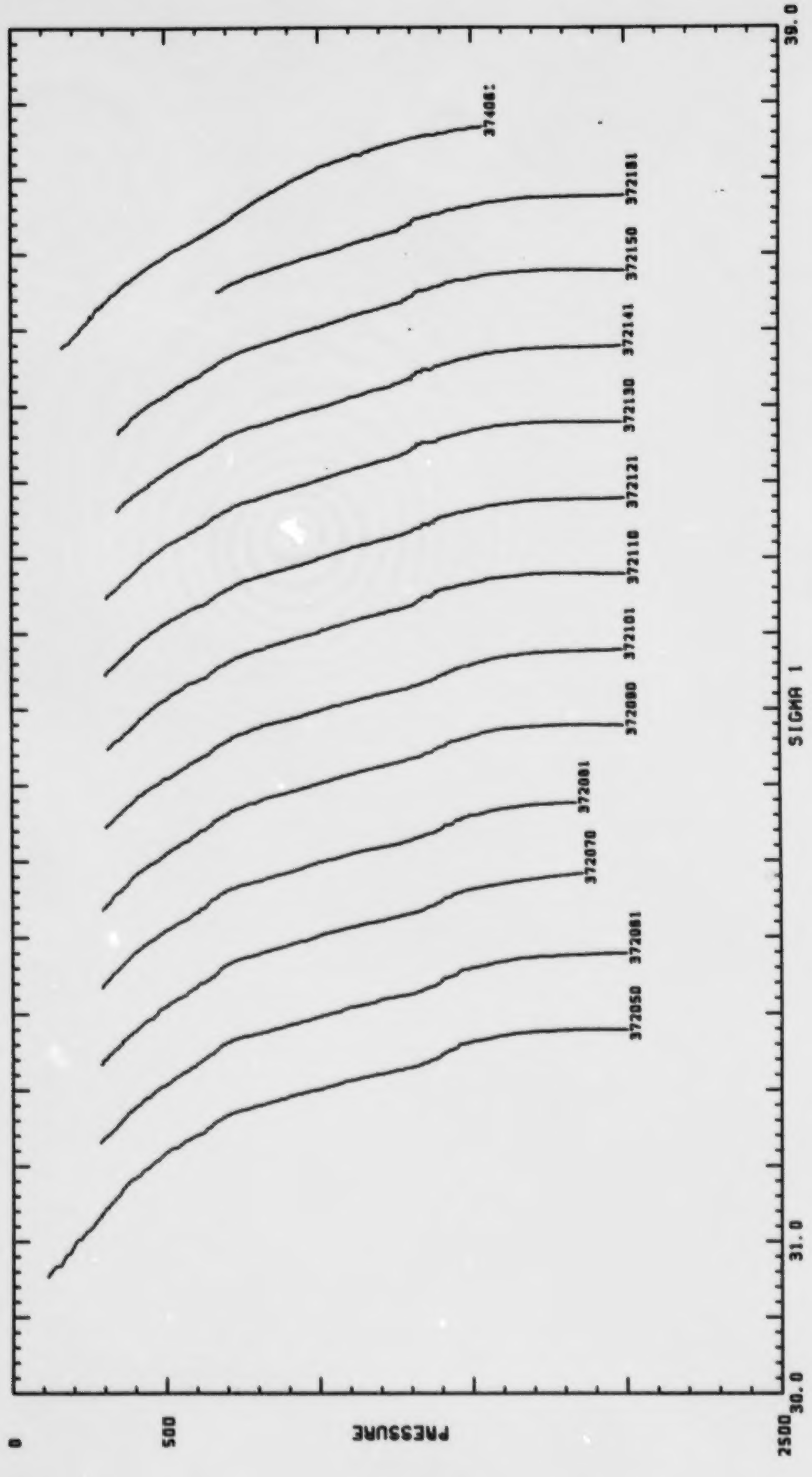
PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
365010
365021
365030
365041
371010
371021
371030
371041
371050
371061
372010
372021
372030
372041

Survey I : October 1984

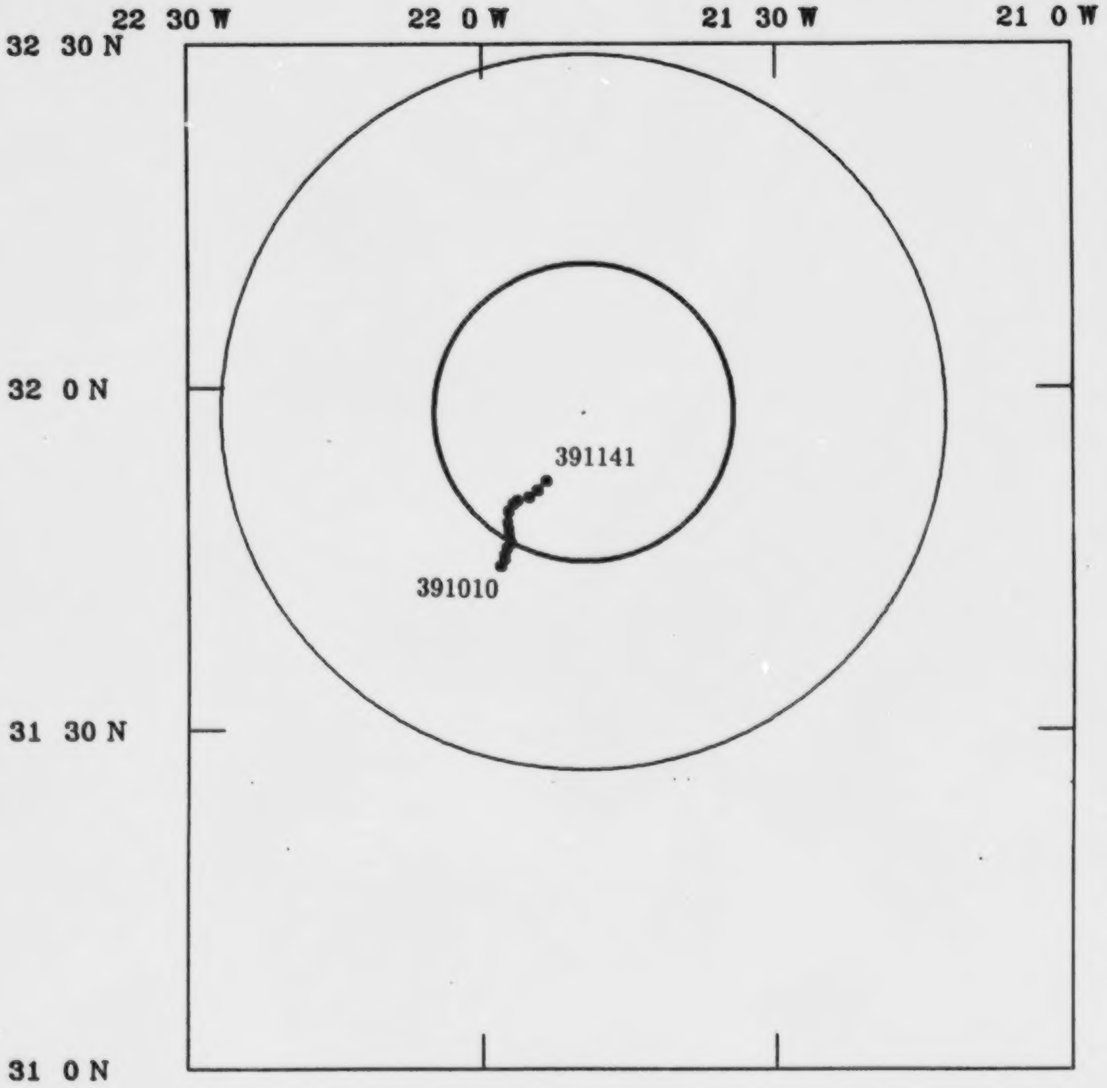


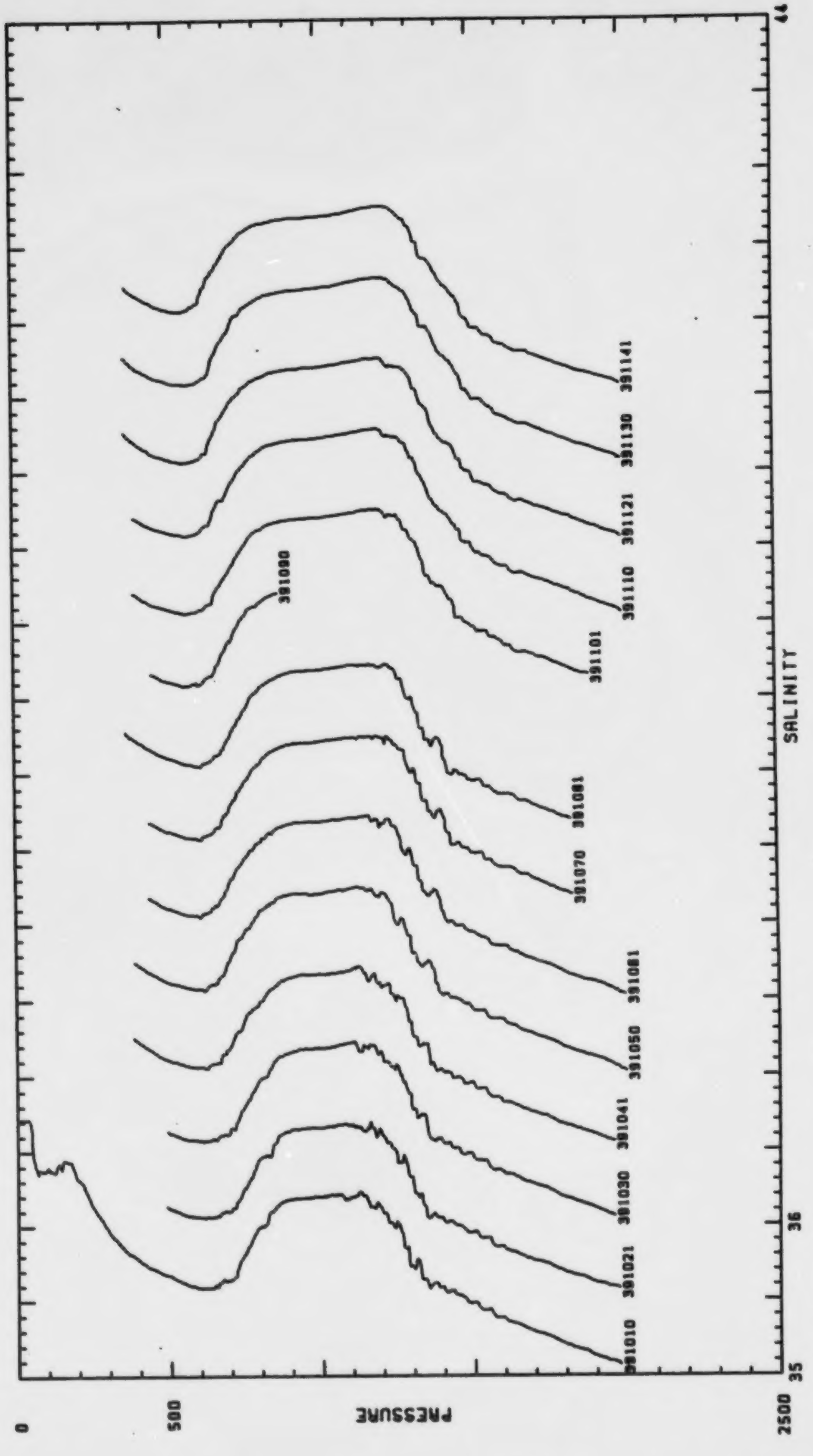

PRESSURE
0
500
2500
SALINITY
35
36
44
372050
372061
372070
372081
372090
372101
372110
372121
372130
372141
372150
372161
374081


PRESSURE
0
500
2500
THETA 1
0
10
90
374081
372181
372150
372141
372130
372121
372110
372101
372090
372081
372070
372061
372050

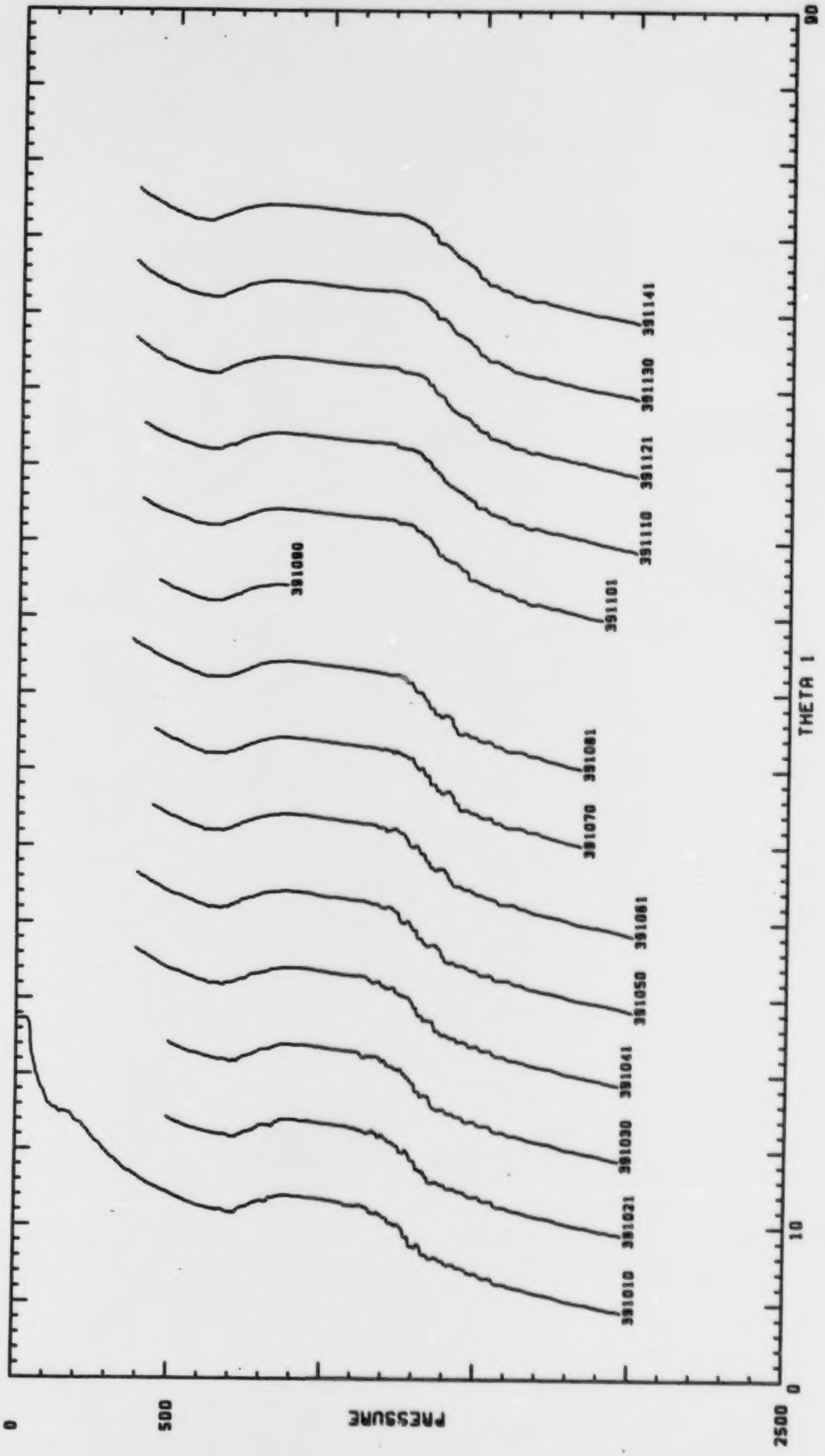

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
372181
372150
372141
372130
372121
372110
372101
372070
372050

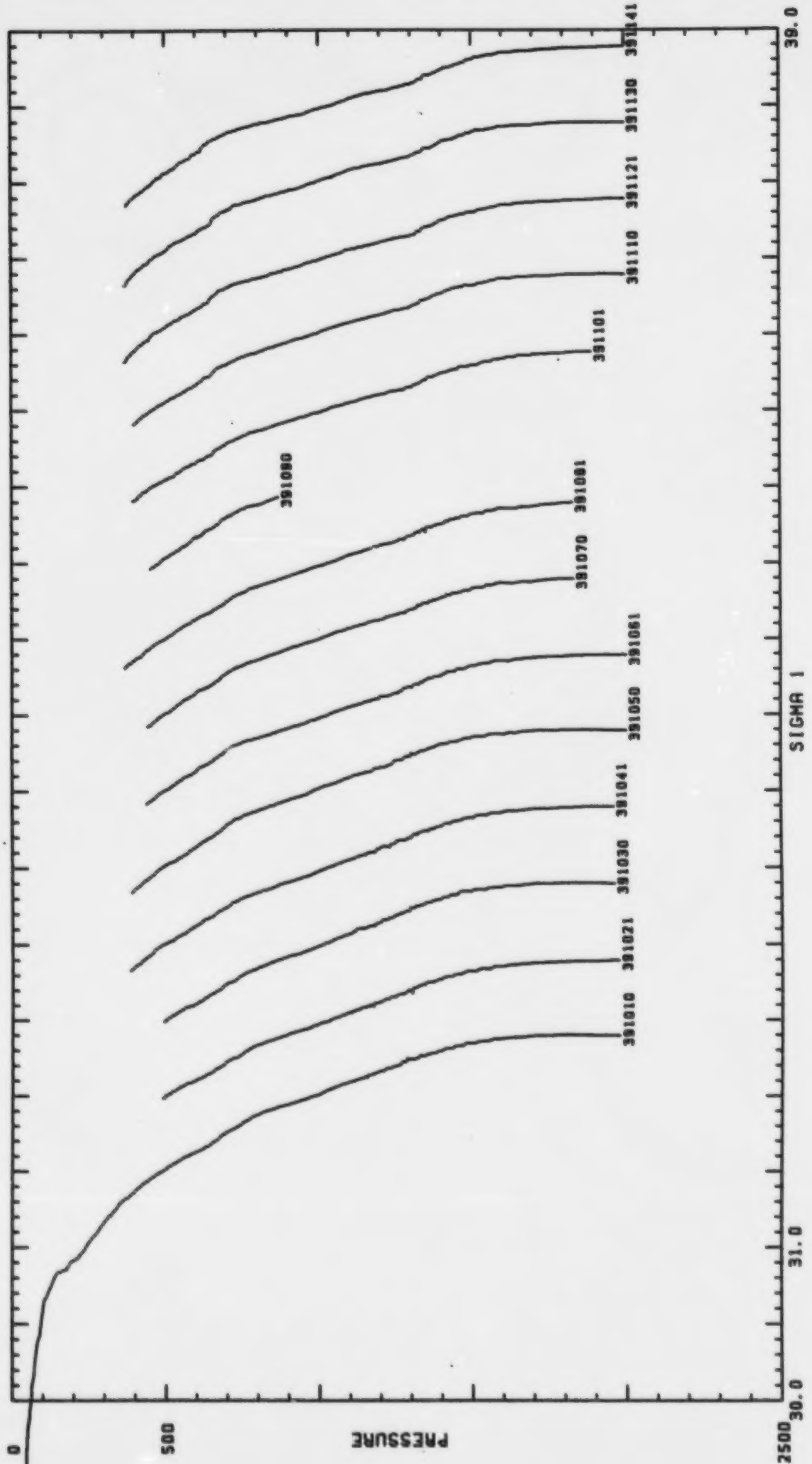
Survey I : October 1984



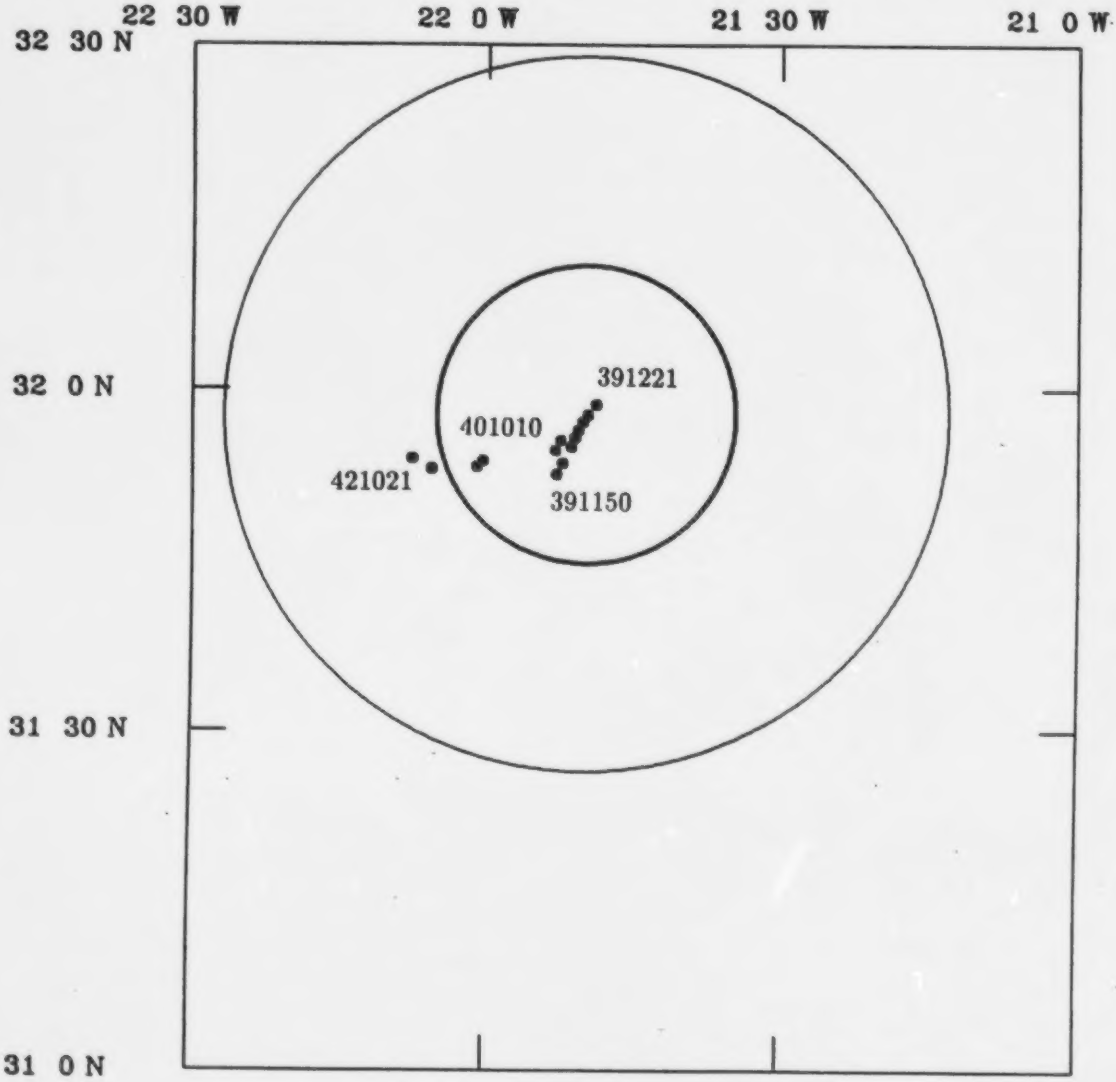


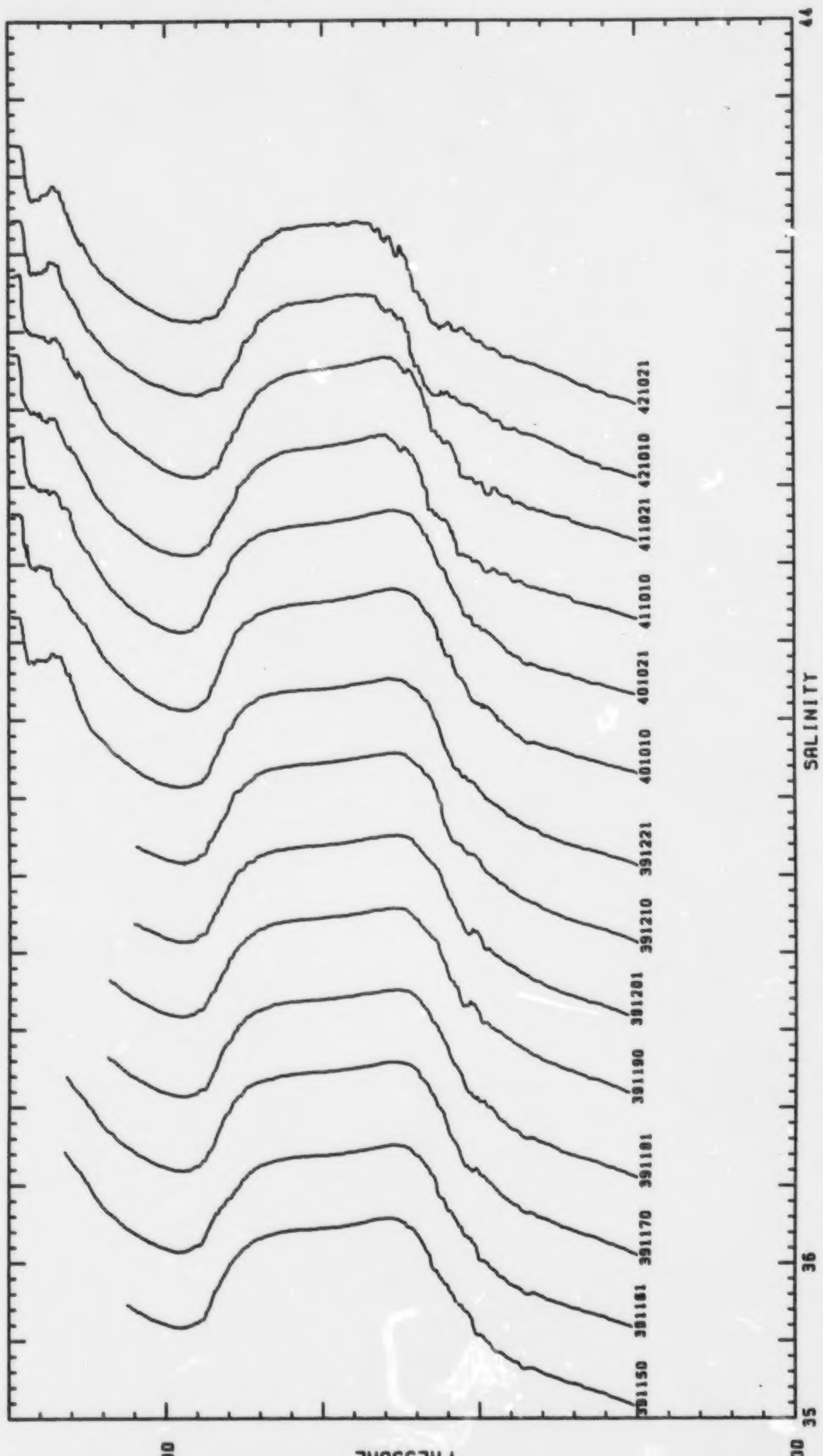
PRESSURE
0
500
2500
SALINITY
35
36
44
391010
391021
391030
391041
391050
391061
391070
391081
391090
391101
391110
391121
391130
391141


PRESSURE
0
500
2500
THETA I
0
10
90
391010
391021
391030
391041
391050
391070
391080
391101
391110
391121
391130
391141

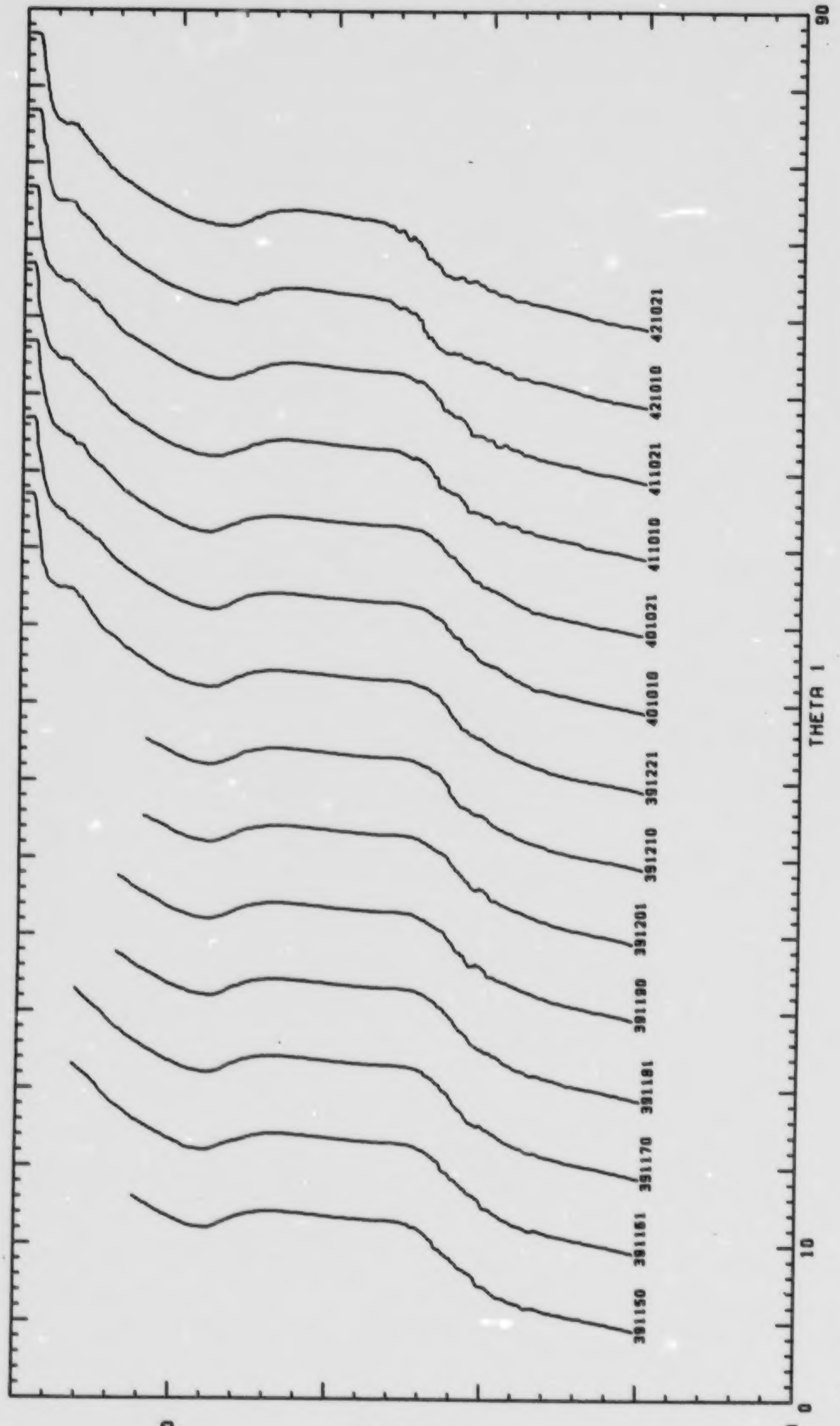

391141
391130
391121
391110
391101
391080
391081
391070
391061
391050
391041
391030
391021
391010
SIGMA 1
PRESSURE
0
500
2500
30.0
31.0
39.0

Survey I : October 1984

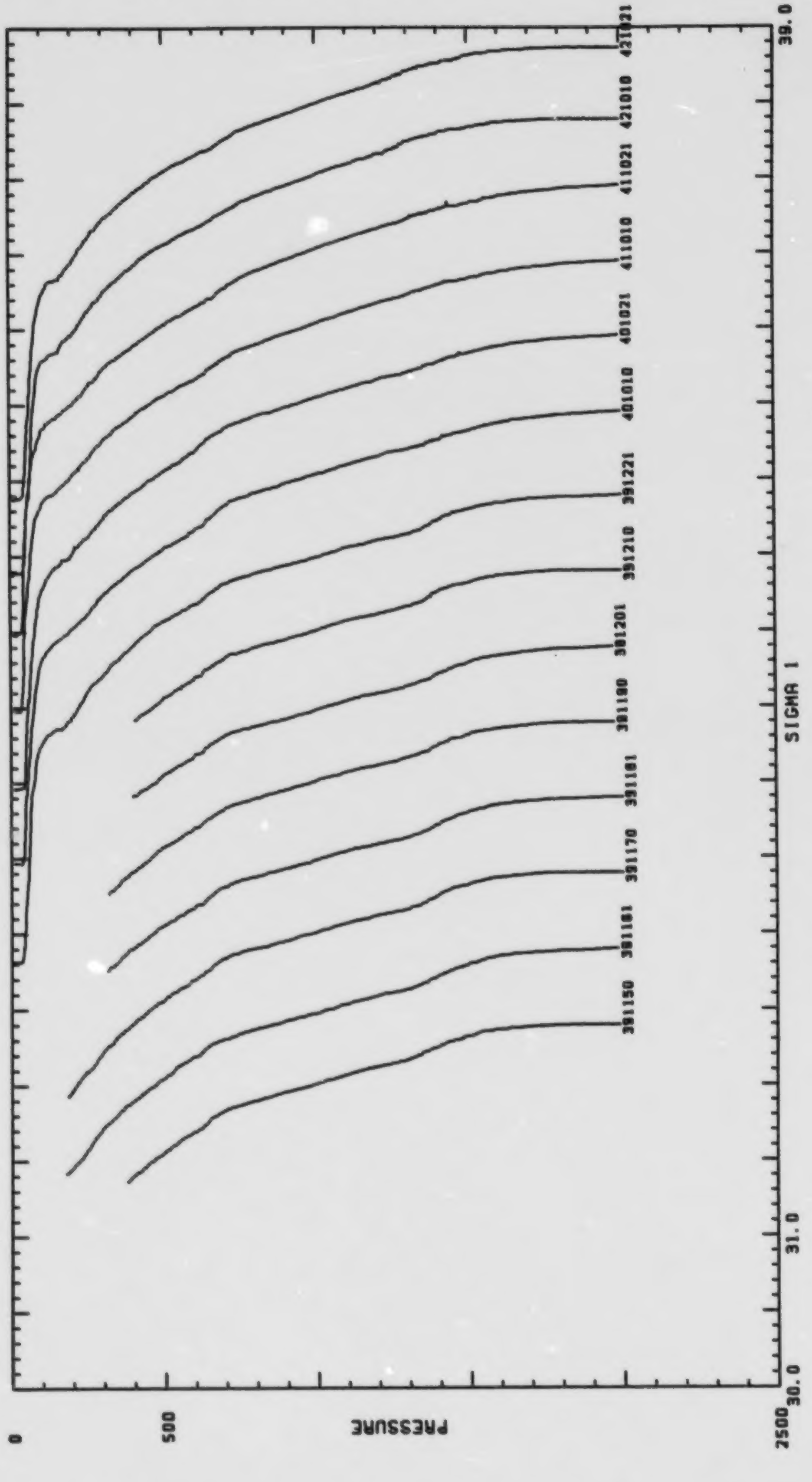




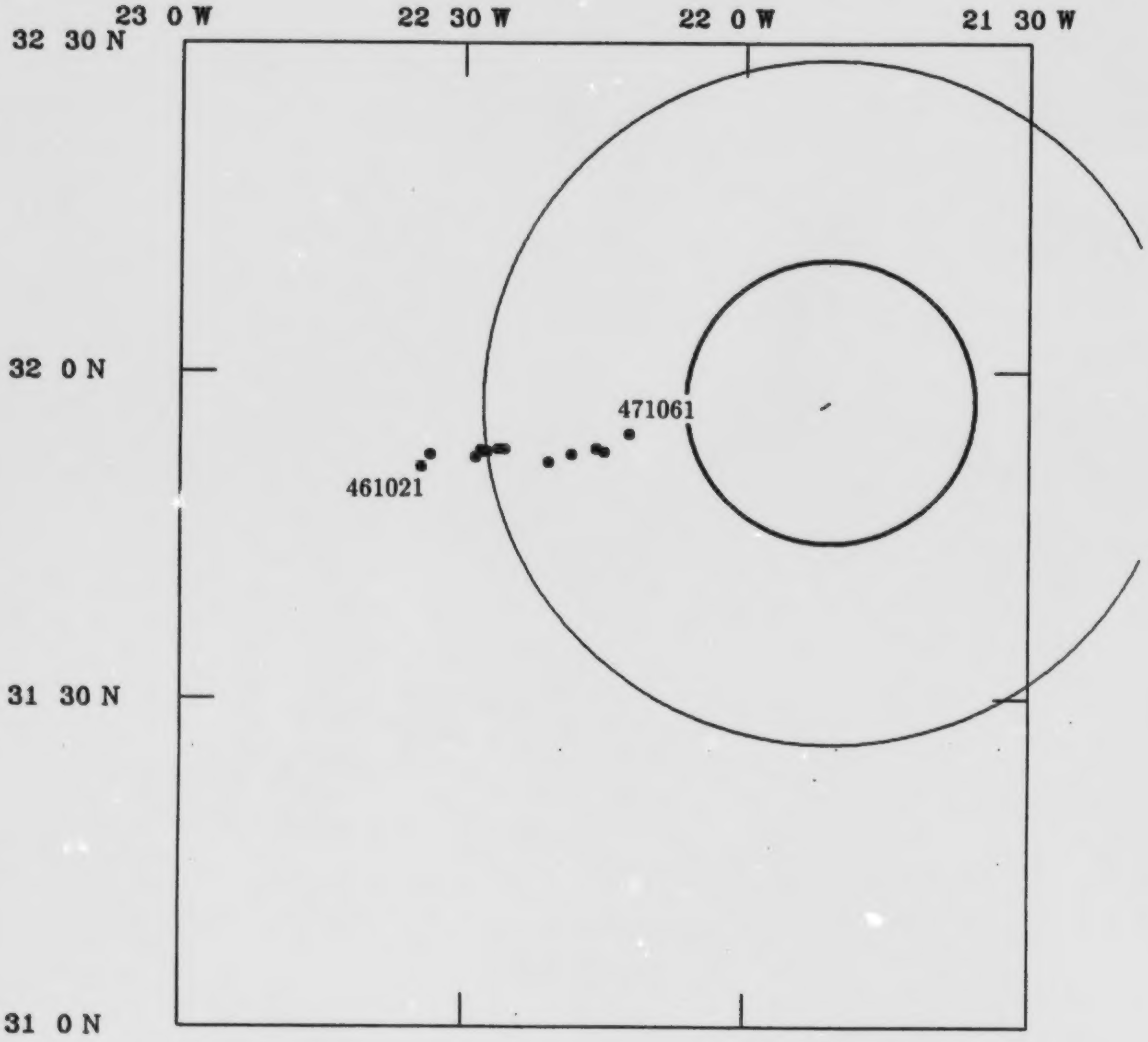
SALINITY
PRESSURE
0
500
2500
35
36
44
391150
391161
391170
391181
391190
391201
391210
391221
401010
401021
411010
411021
421010
421021

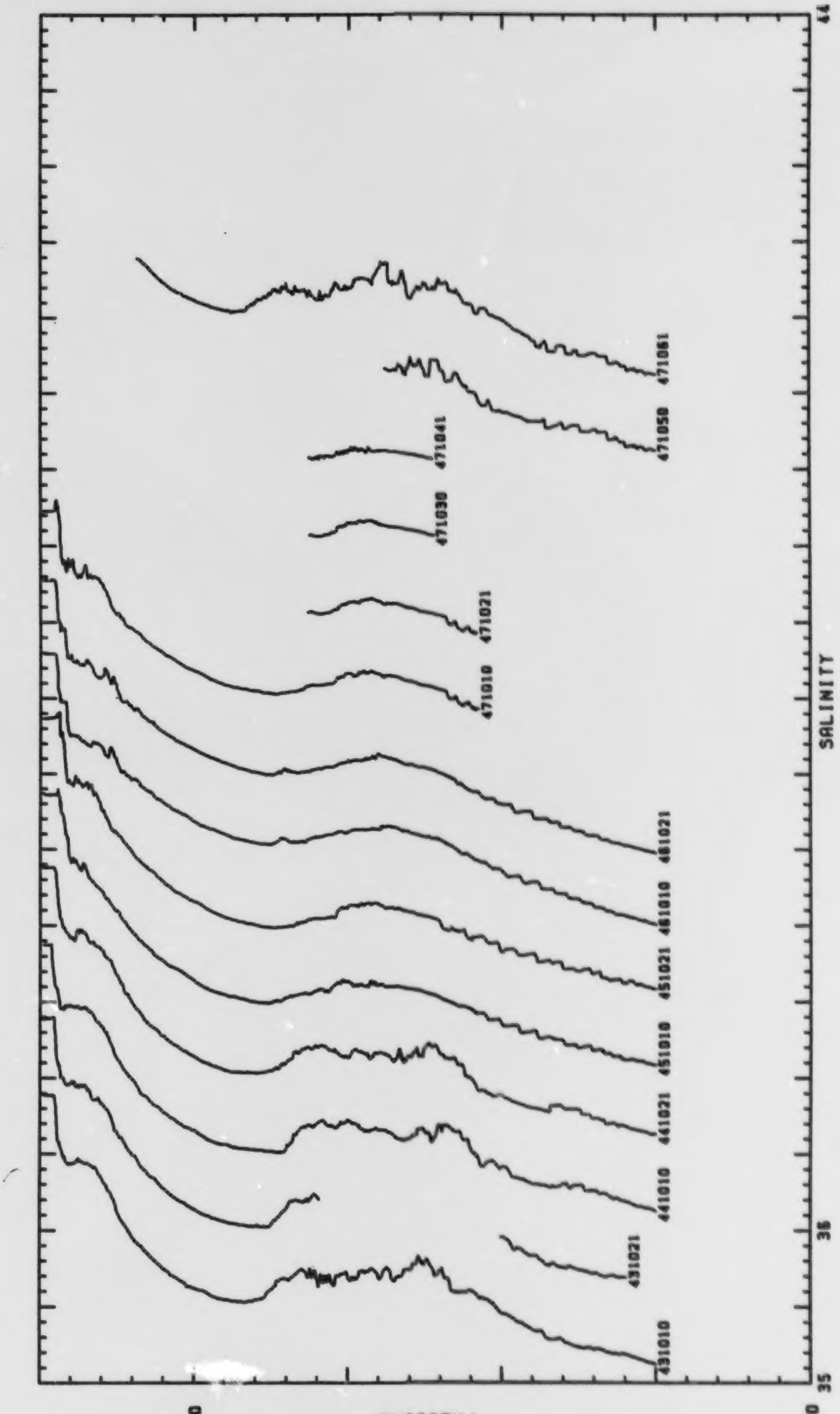


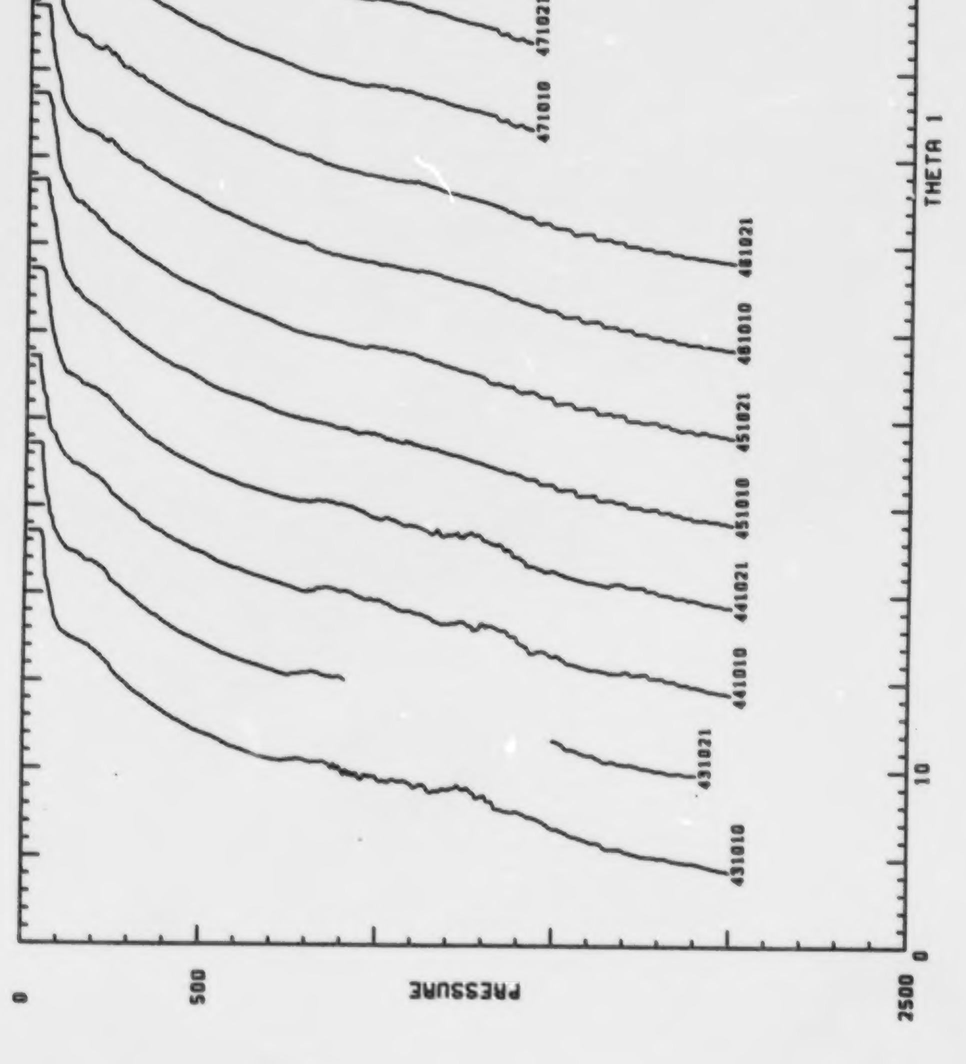
PRESSURE
0
500
2500
THETA I
0
10
90
421021
421010
411021
411010
401021
401010
391221
391210
391201
391190
391181
391170
391161
391150

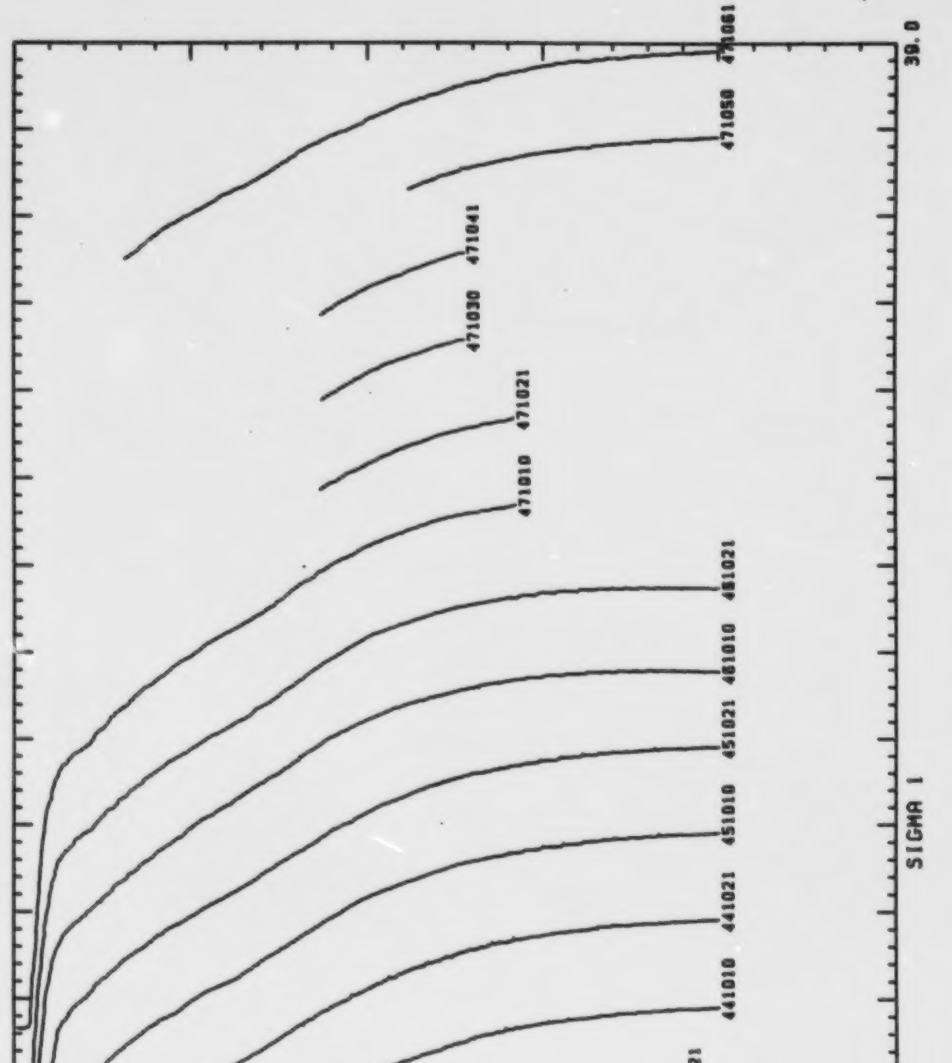

421021
421010
411021
411010
401021
401010
391221
391210
391201
391190
391181
391170
391161
391150
SIGMA 1
39.0
31.0
30.0
PRESSURE
0
500
2500

Survey I : October 1984



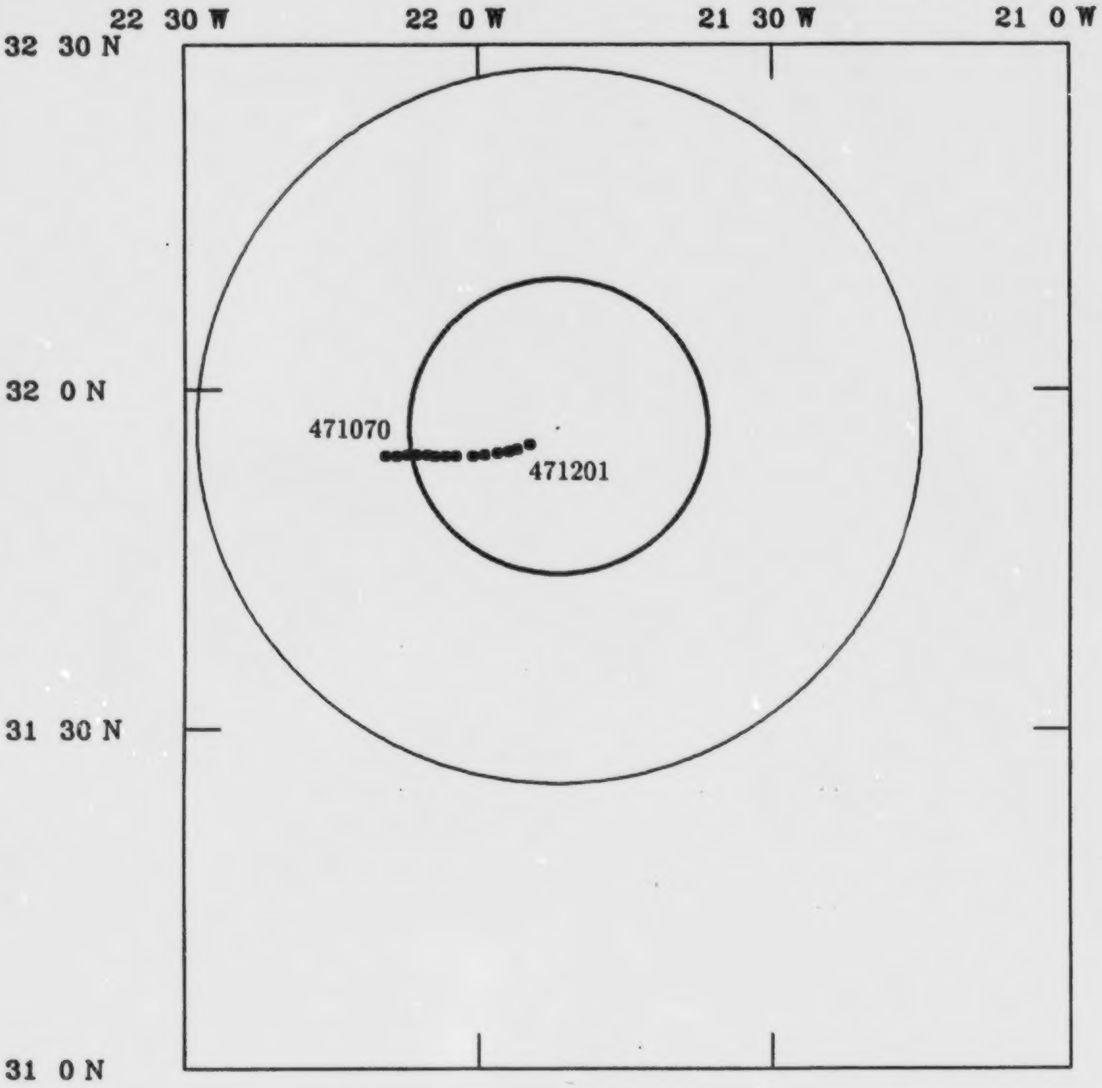

PRESSURE
0
500
2500
SALINITY
35
38
44
431010
431021
441010
441021
451010
451021
461010
461021
471010
471021
471030
471041
471050
471061

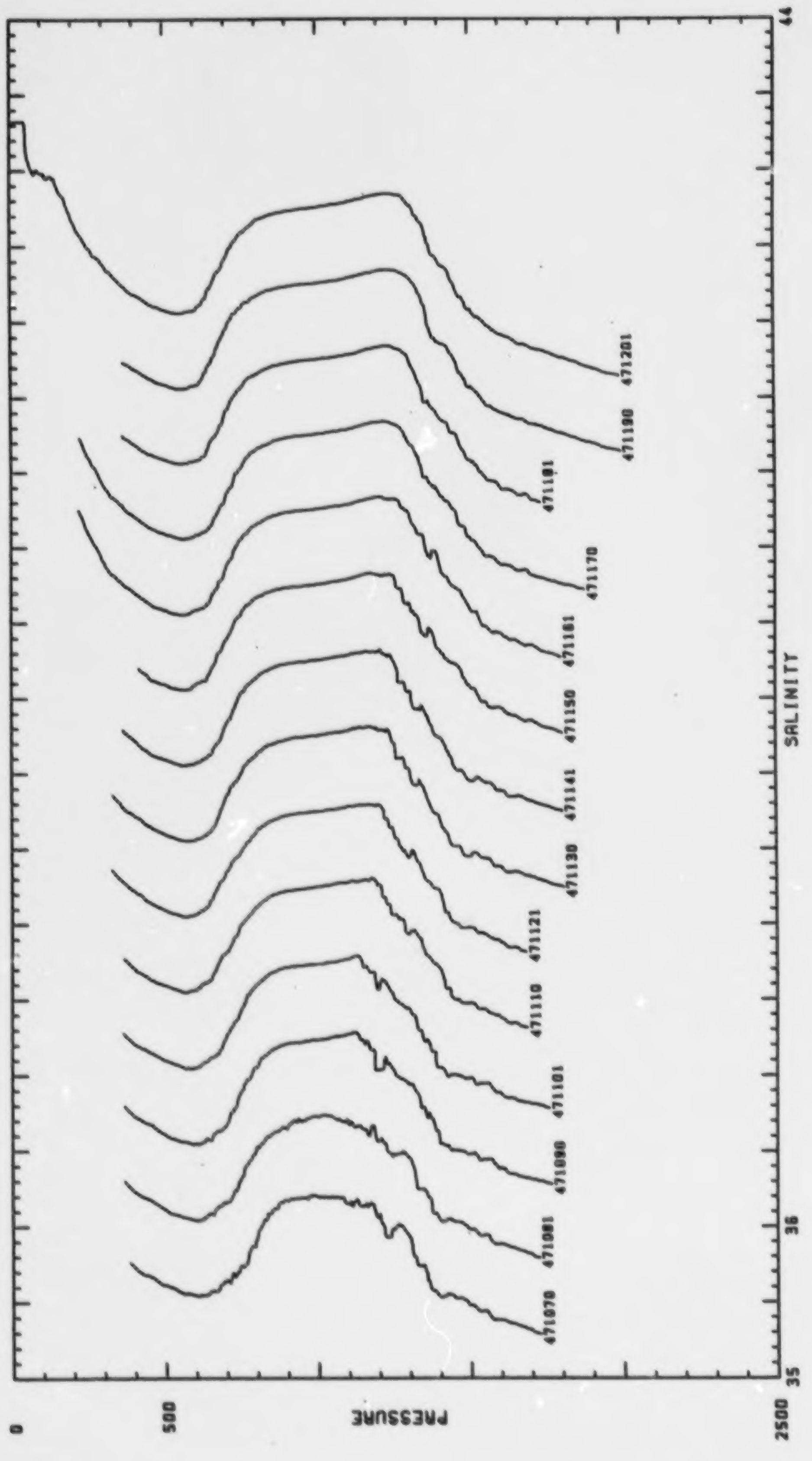

PRESSURE
0
500
2500
THETA 1
0
10
90
471061
471050
471041
471030
471021
471010
481021
481010
451021
451010
441021
441010
431021
431010

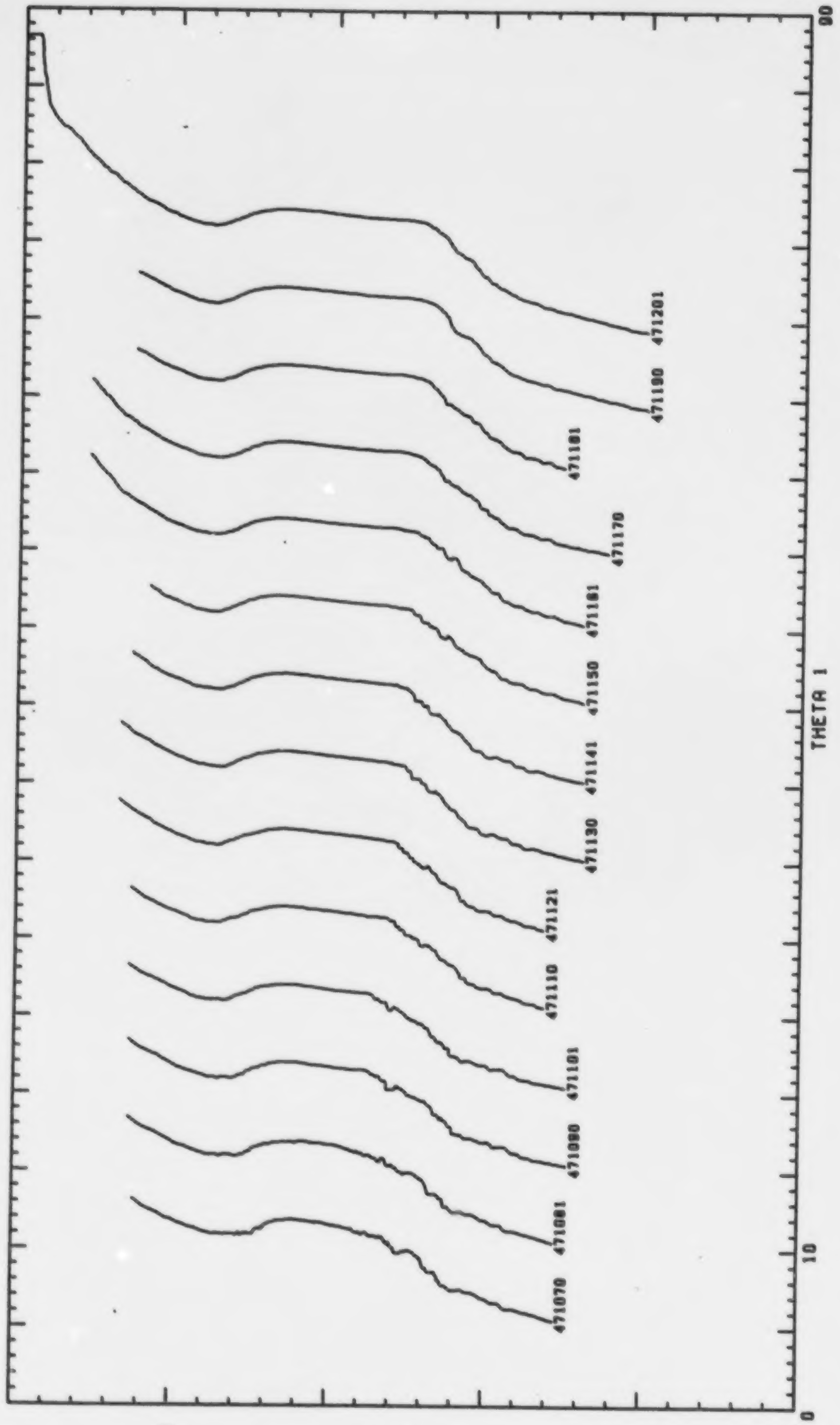


PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
30.0
471050
471041
471030
471021
471010
481021
481010
451021
451010
441021
441010
431021
431010

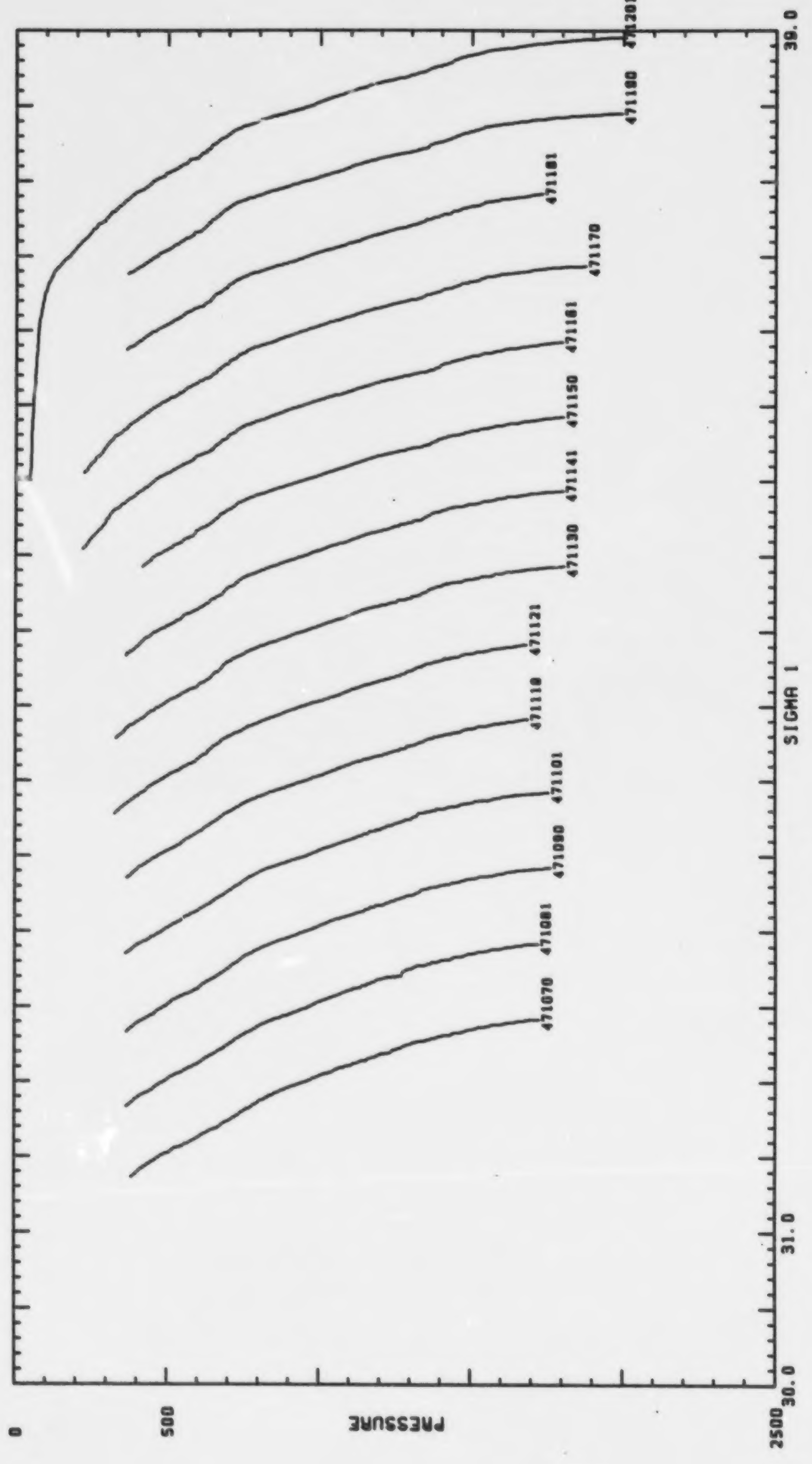
Survey I : October 1984



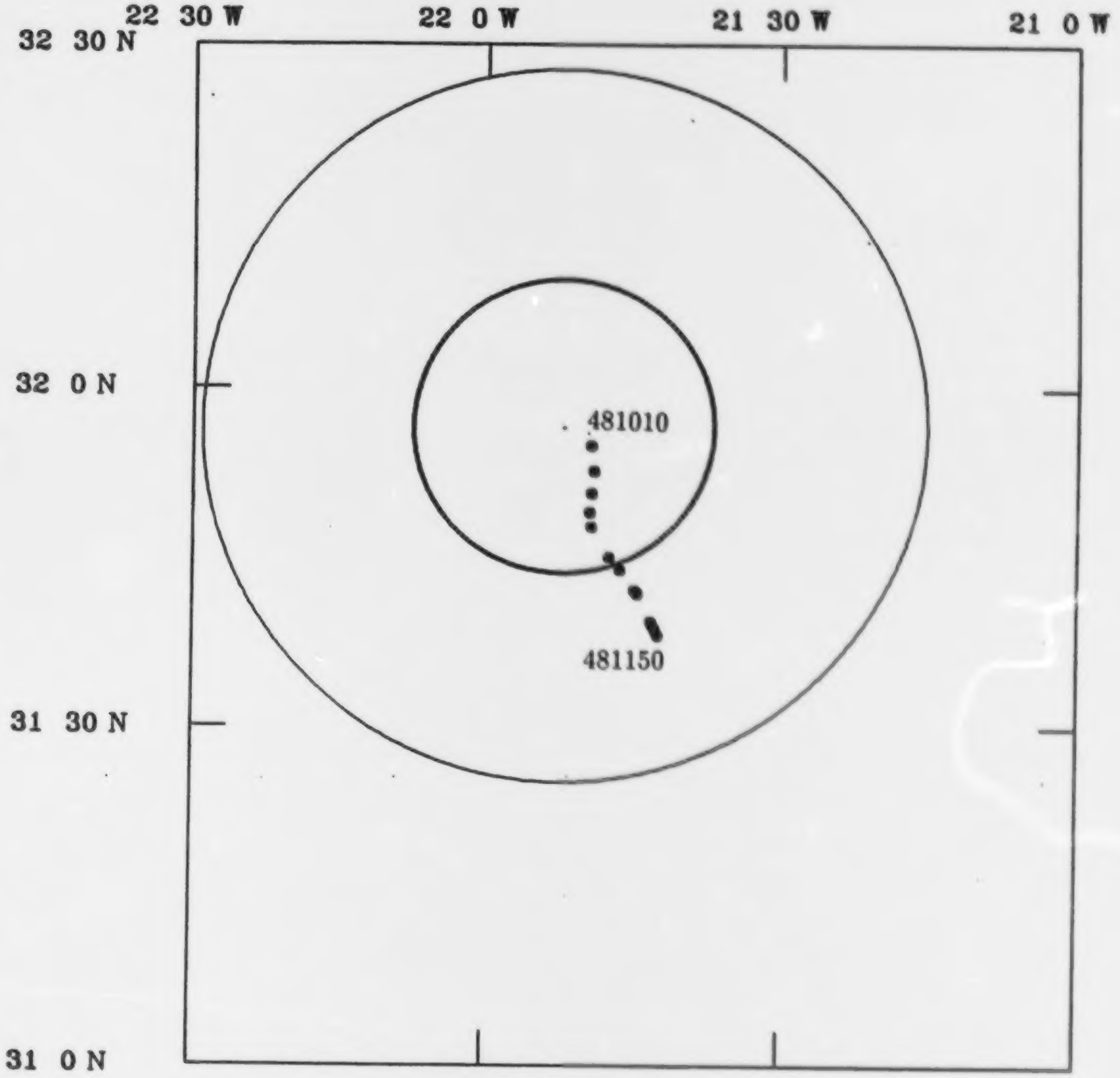

PRESSURE
0
500
2500
SALINITY
35
36
471070
471081
471090
471101
471110
471121
471130
471141
471150
471161
471170
471181
471190
471201

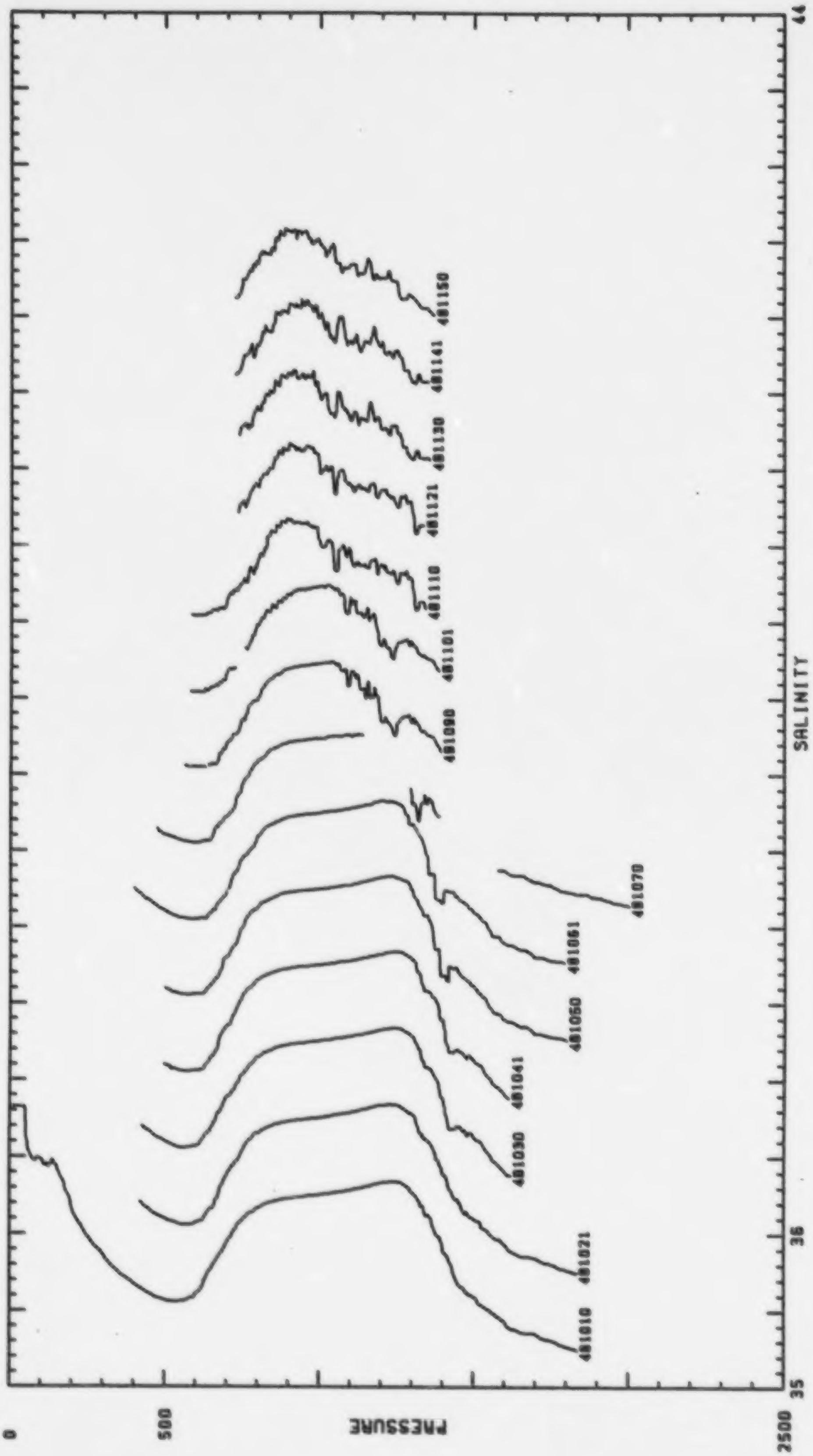


PRESSURE
0
500
2500
THETA 1
0
10
90
471070
471081
471090
471101
471110
471121
471130
471141
471150
471161
471170
471181
471190
471201

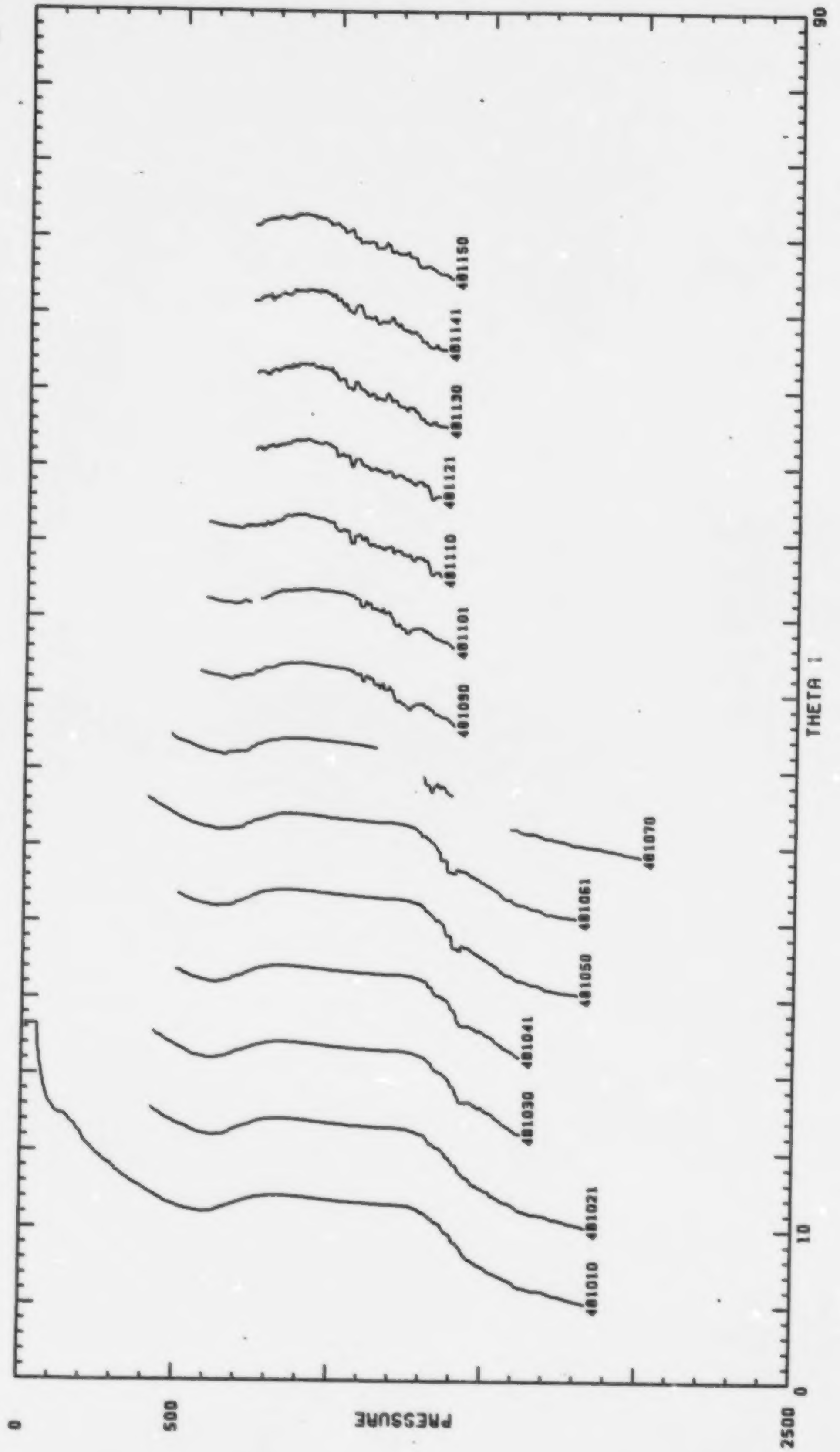

471201
471190
471181
471170
471161
471150
471141
471130
471121
471110
471101
471090
471081
471070
SIGMA
30.0
31.0
39.0
PRESSURE
0
500
2500

Survey I : October 1984

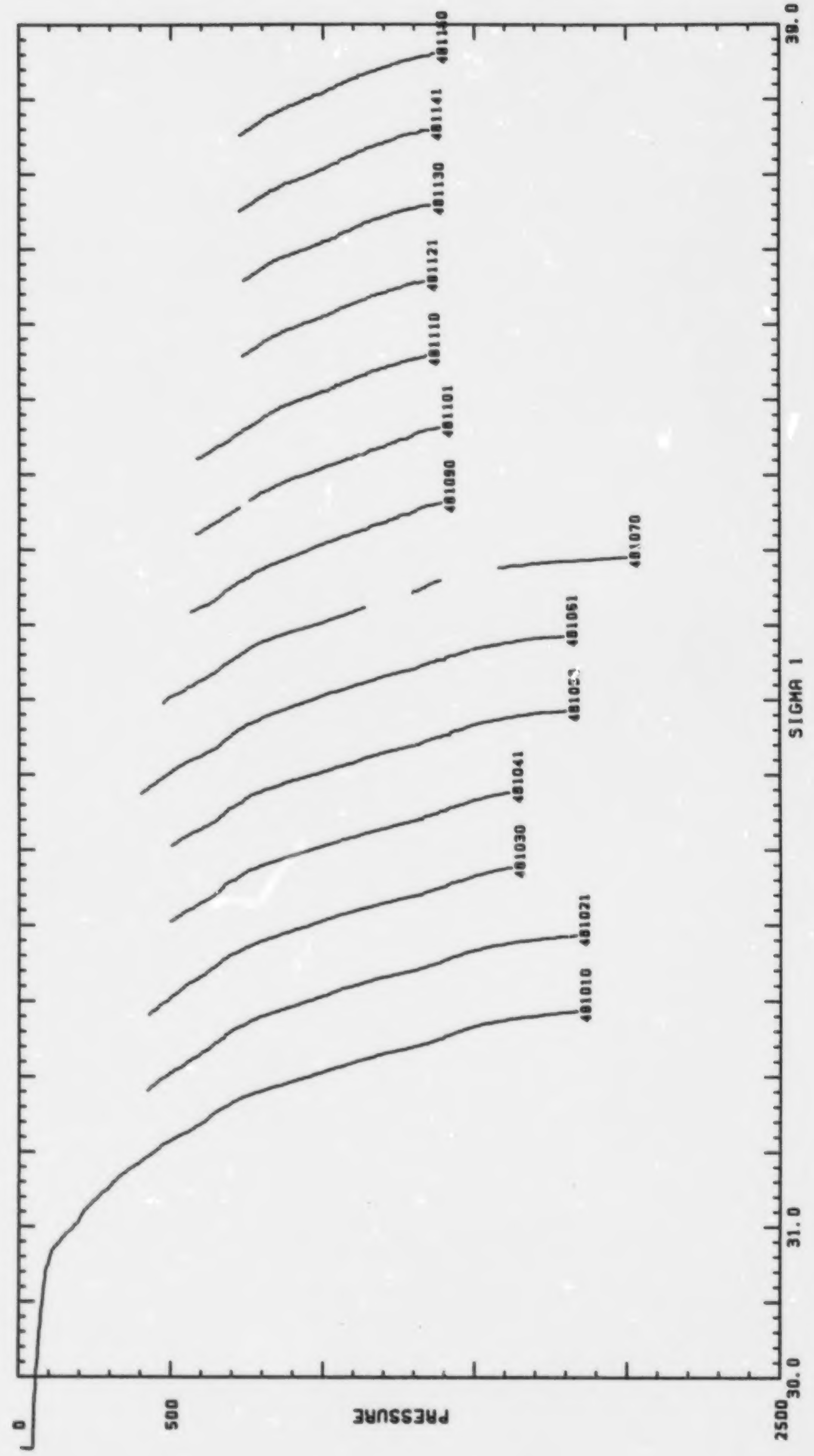




SALINITY
PRESSURE
0
500
2500
35
36
44
481010
481021
481030
481041
481050
481061
481070
481090
481101
481110
481121
481130
481141
481150

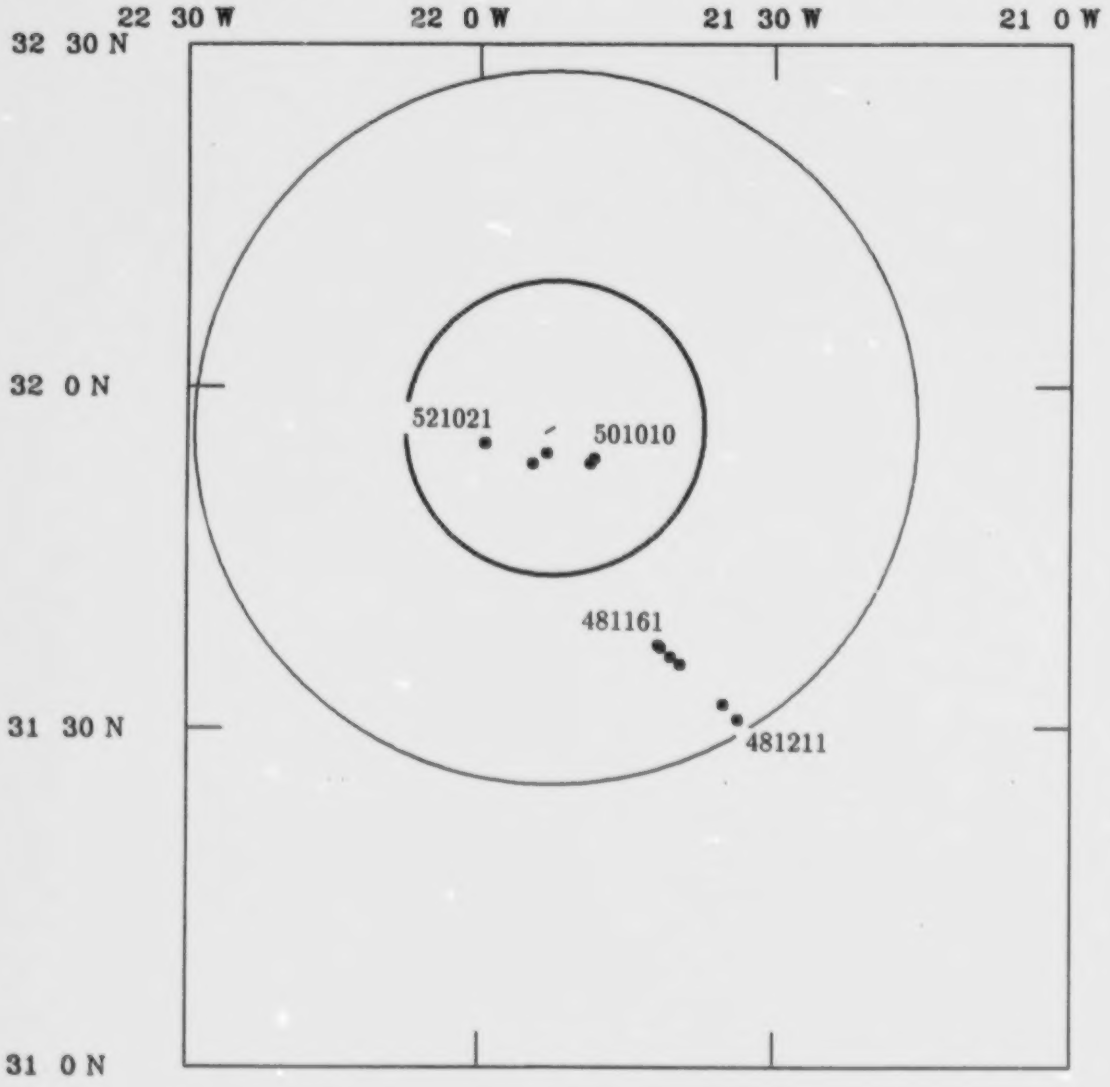


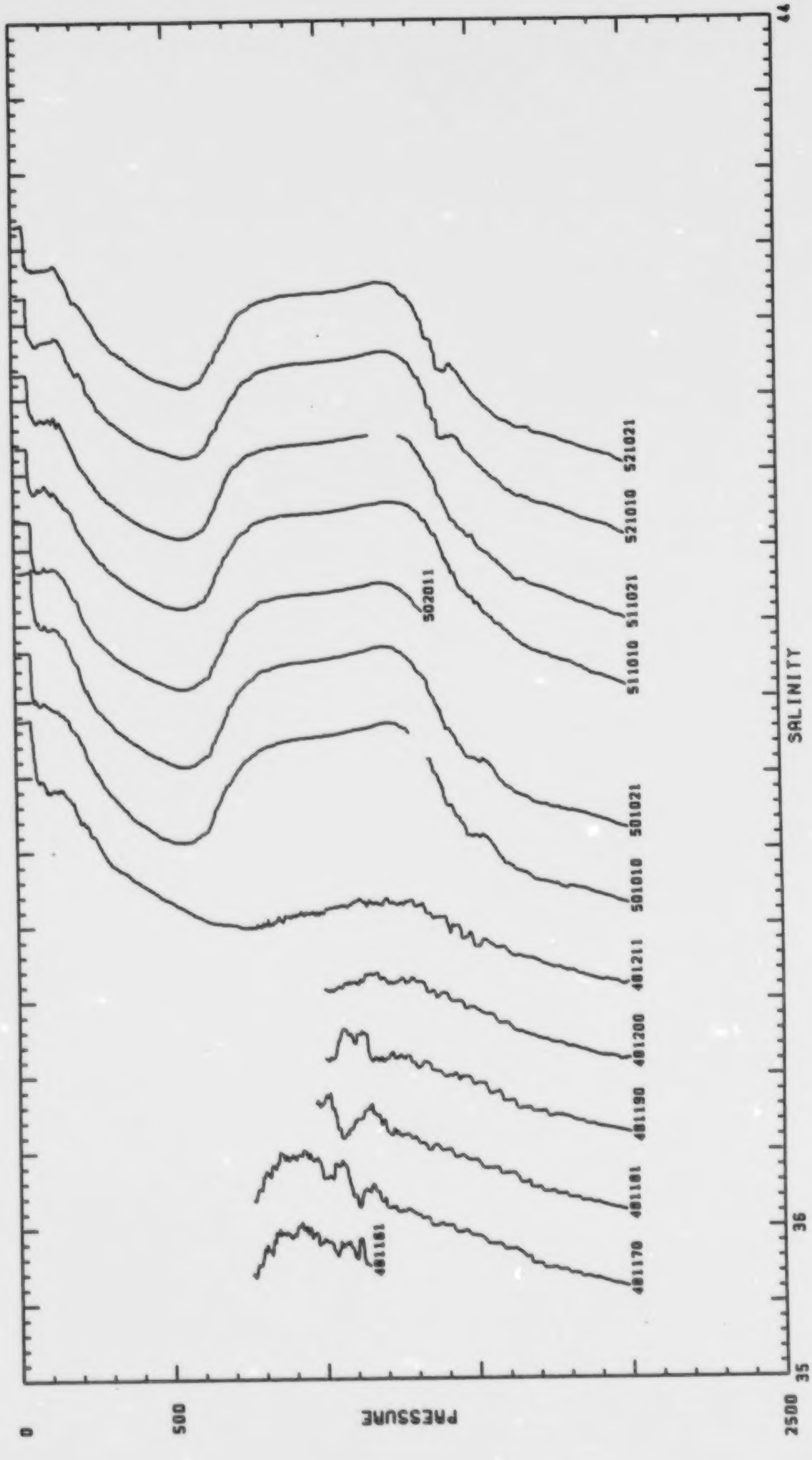
PRESSURE
0
500
2500
THETA 1
0
10
90
481010
481021
481030
481041
481050
481061
481070
481090
481101
481110
481121
481130
481141
481150

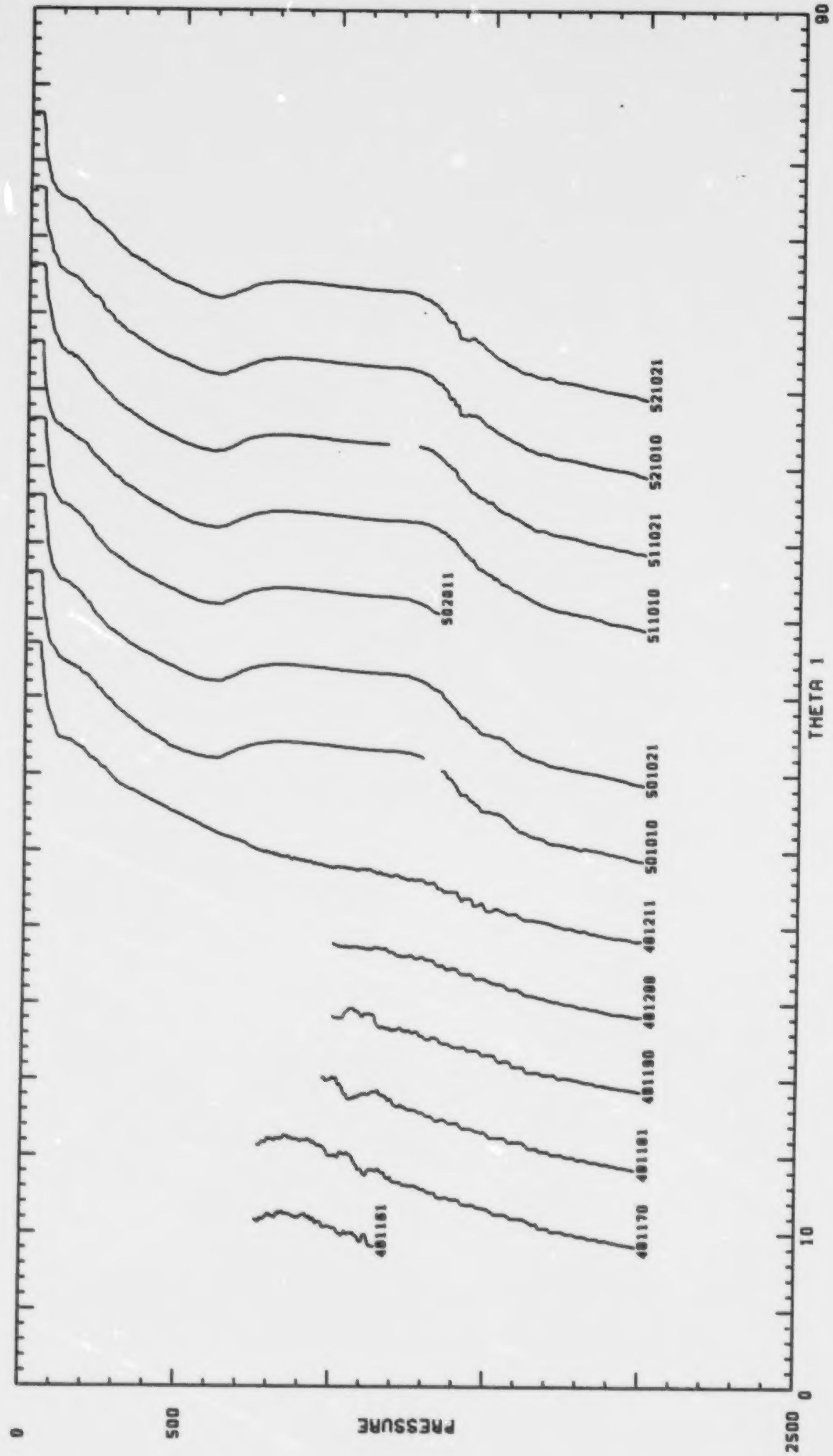


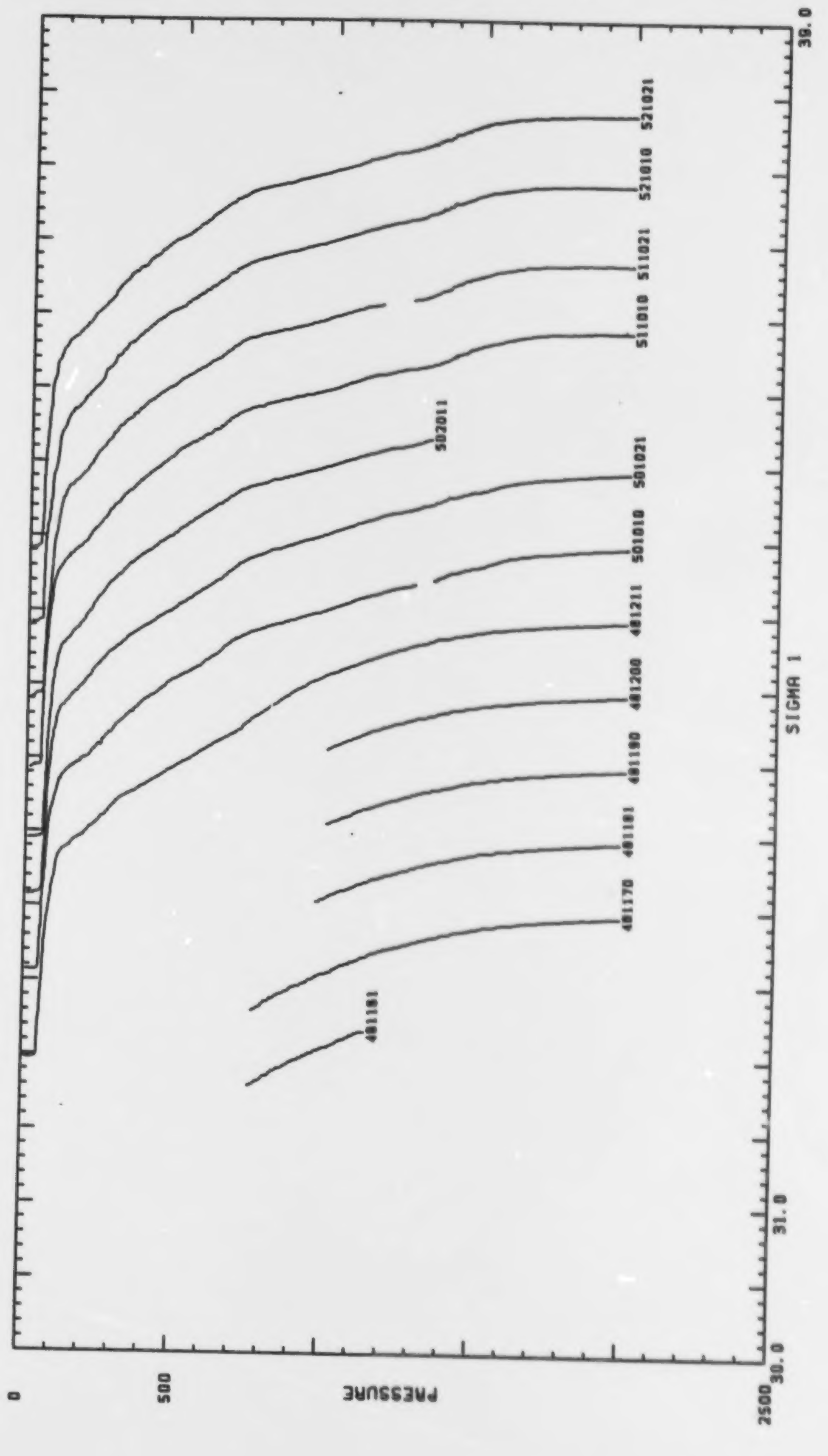
PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
481010
481021
481030
481041
481061
481090
481101
481110
481121
481130
481141

Survey I : October 1984

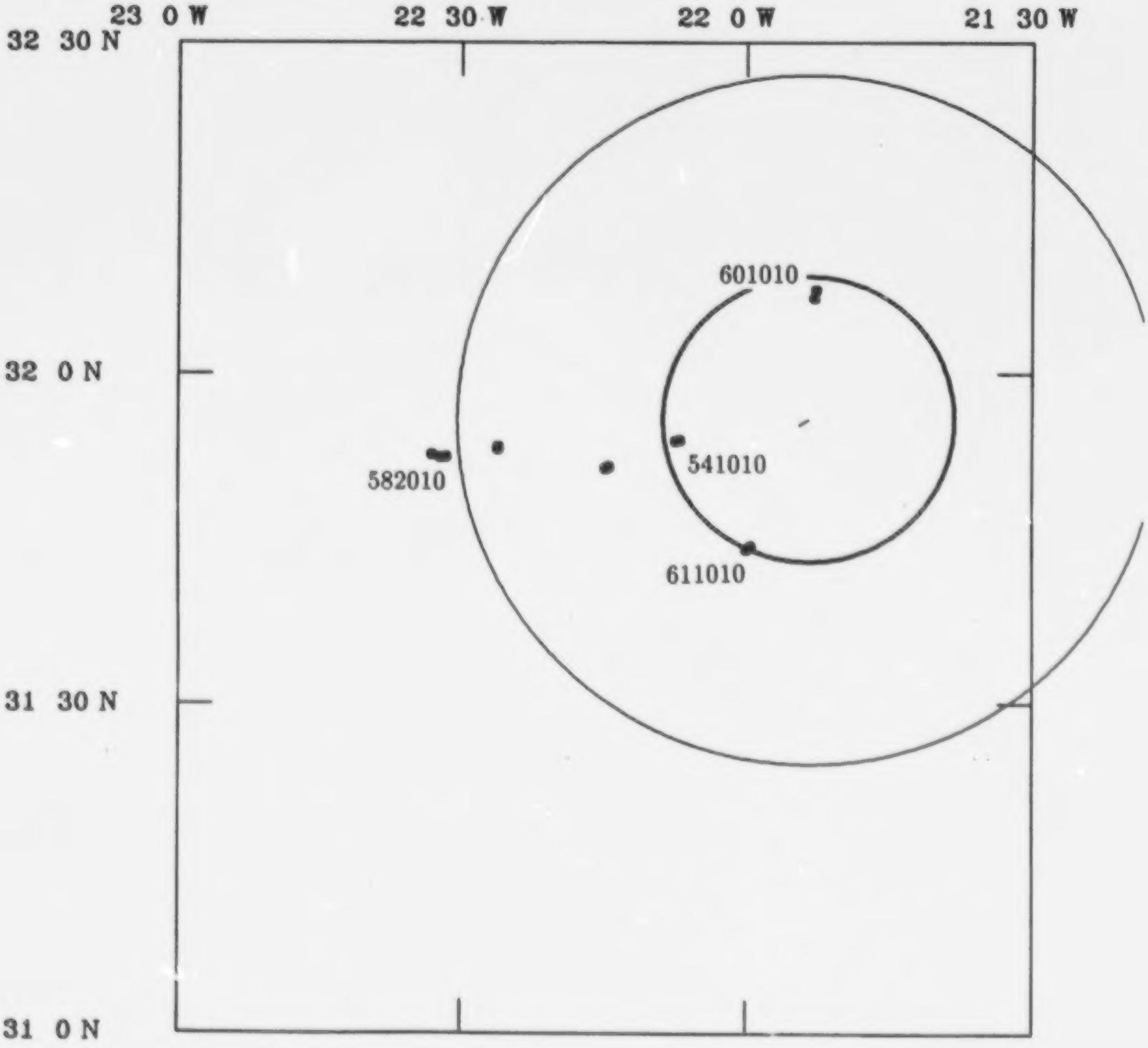


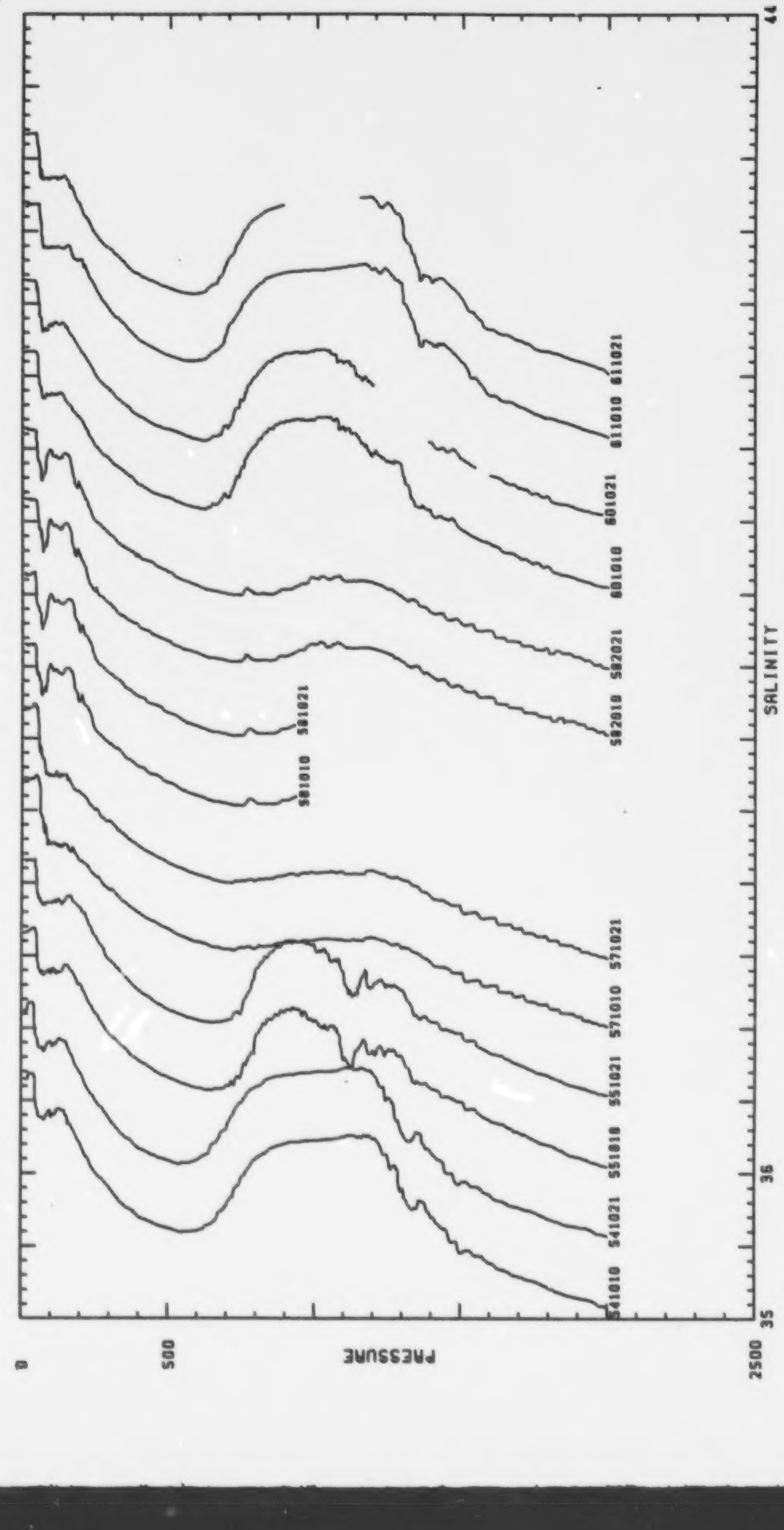

0
500
PRESSURE
2500
35
36
SALINITY
44
521021
521010
511021
511010
502011
501021
501010
481211
481200
481190
481181
481170
481161

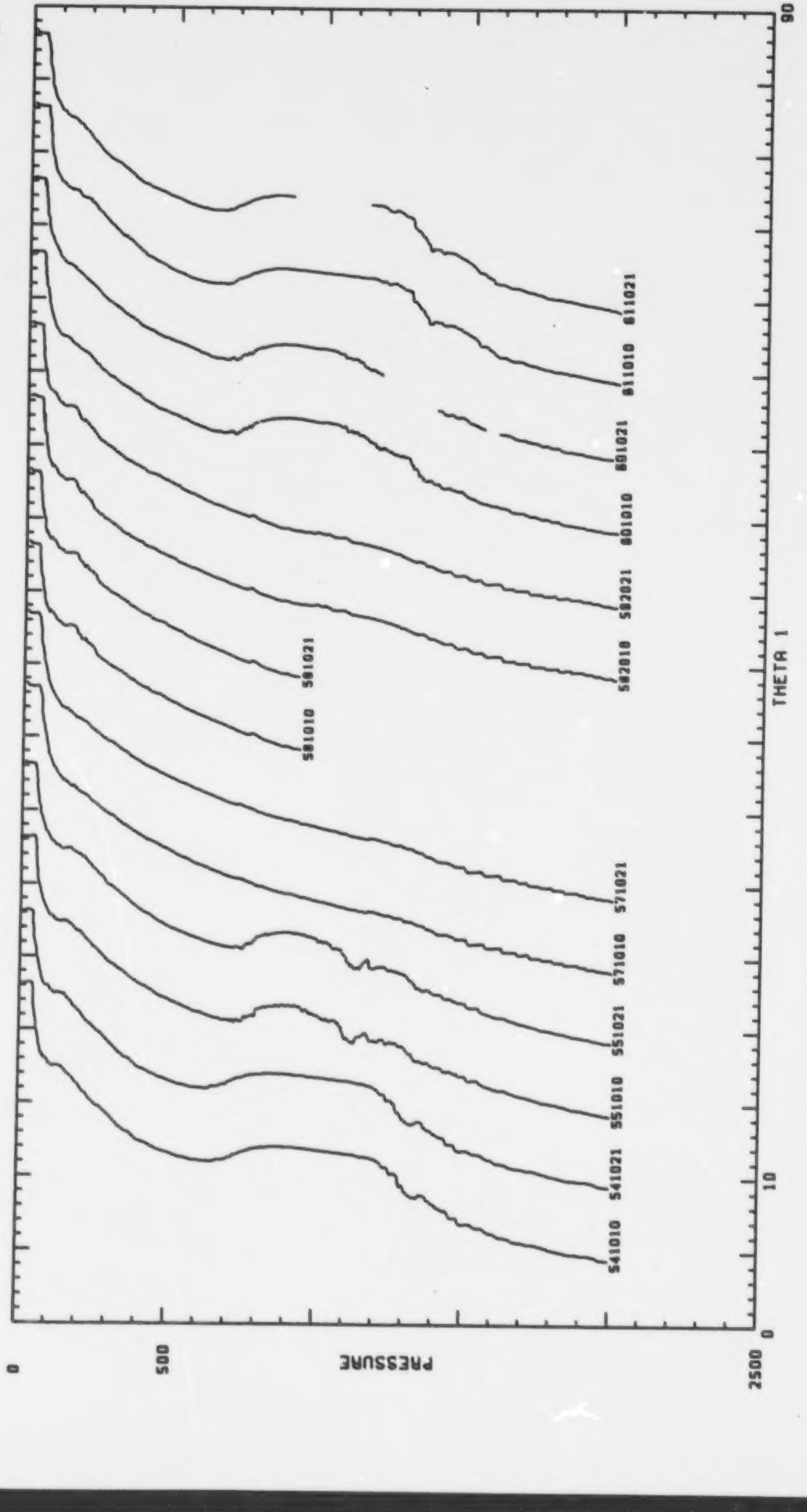

PRESSURE
0
500
2500
THETA 1
0
10
90
521021
521010
511021
511010
502011
501021
501010

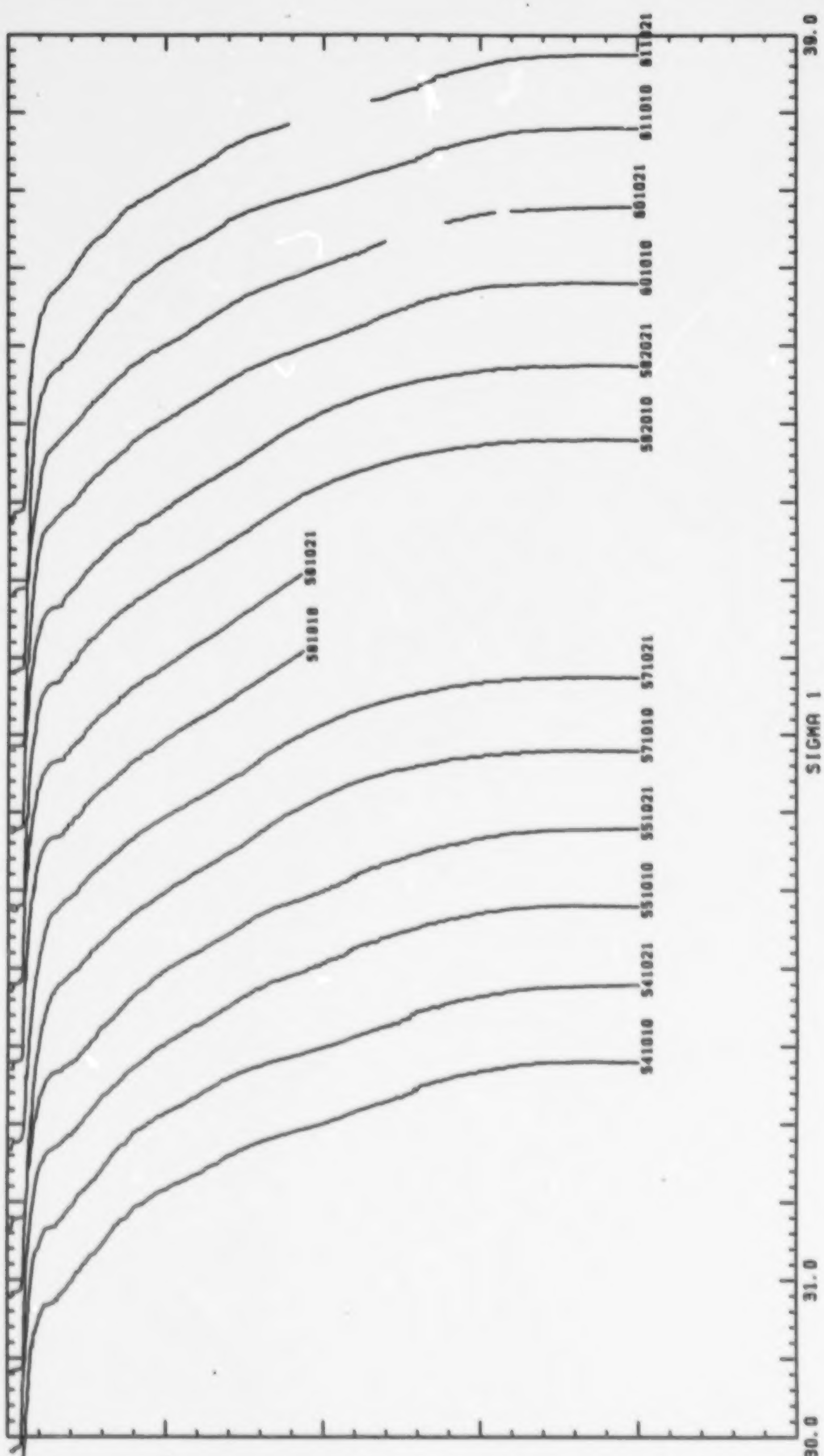

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
521021
521010
511021
511010
502011
501021
501010
481211
481200
481190
481181
481170
481181

Survey I : October 1984

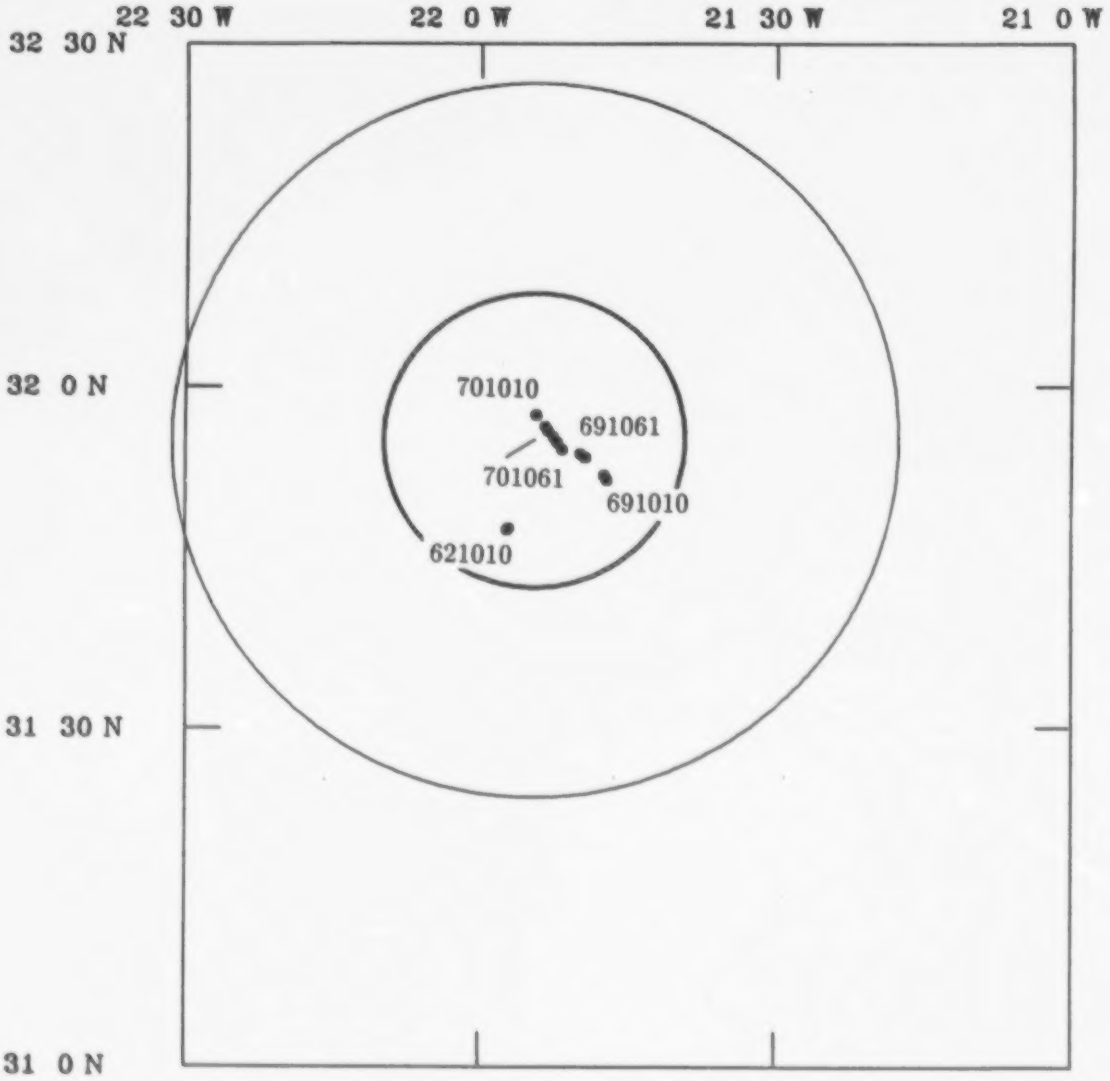


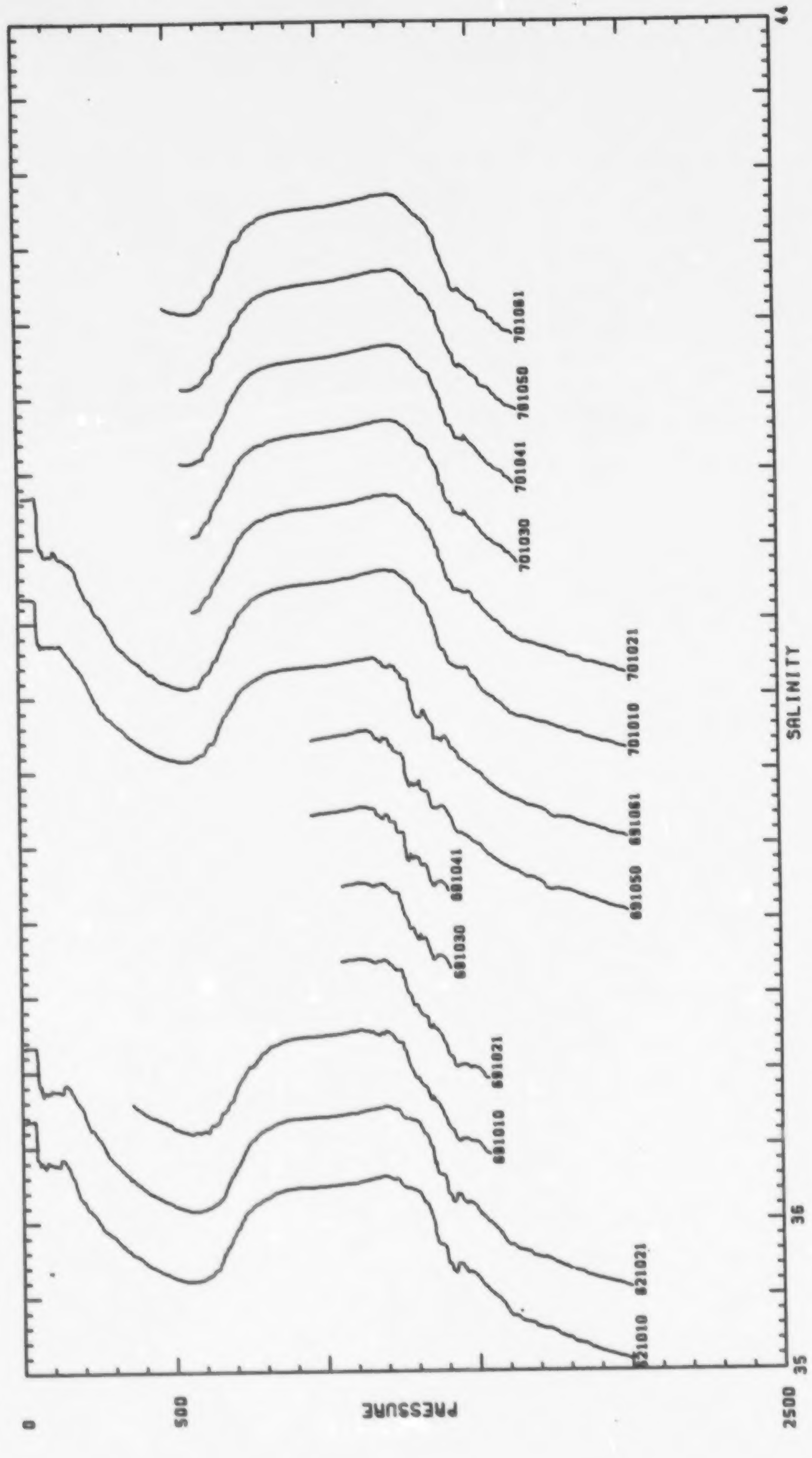

PRESSURE
0
500
2500
SALINITY
35
36
44
541010
541021
551010
551021
571010
571021
581010
581021
582010
582021
601010
601021
611010
611021


PRESSURE
0
500
2500
THETA 1
0
10
90
S41010
S41021
S51010
S51021
S71010
S71021
S81010
S81021
S82010
S82021
601010
601021
611010
611021

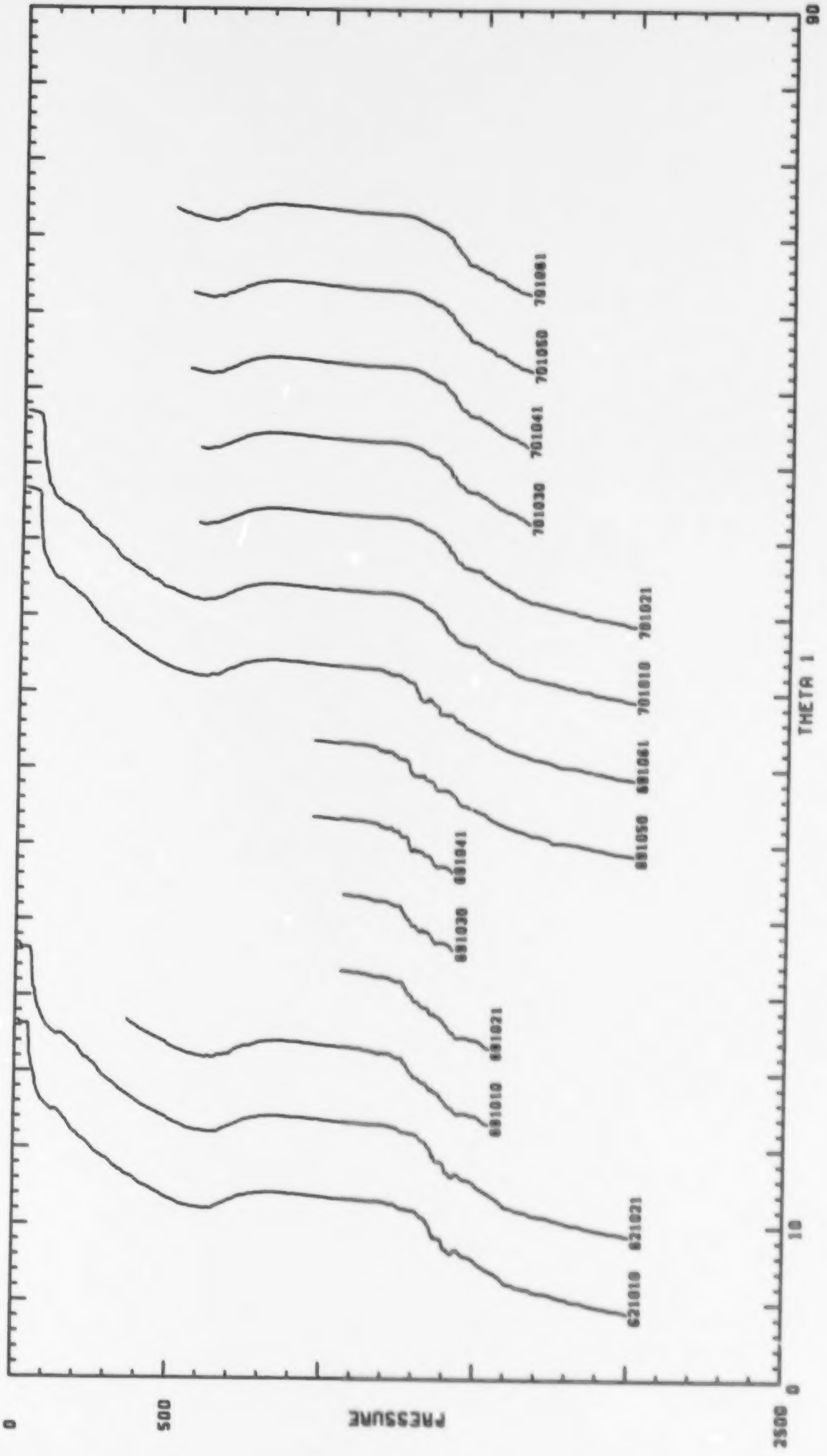

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
S41010
S41021
S51010
S51021
S71010
S71021
S81010
S81021
S82010
S82021

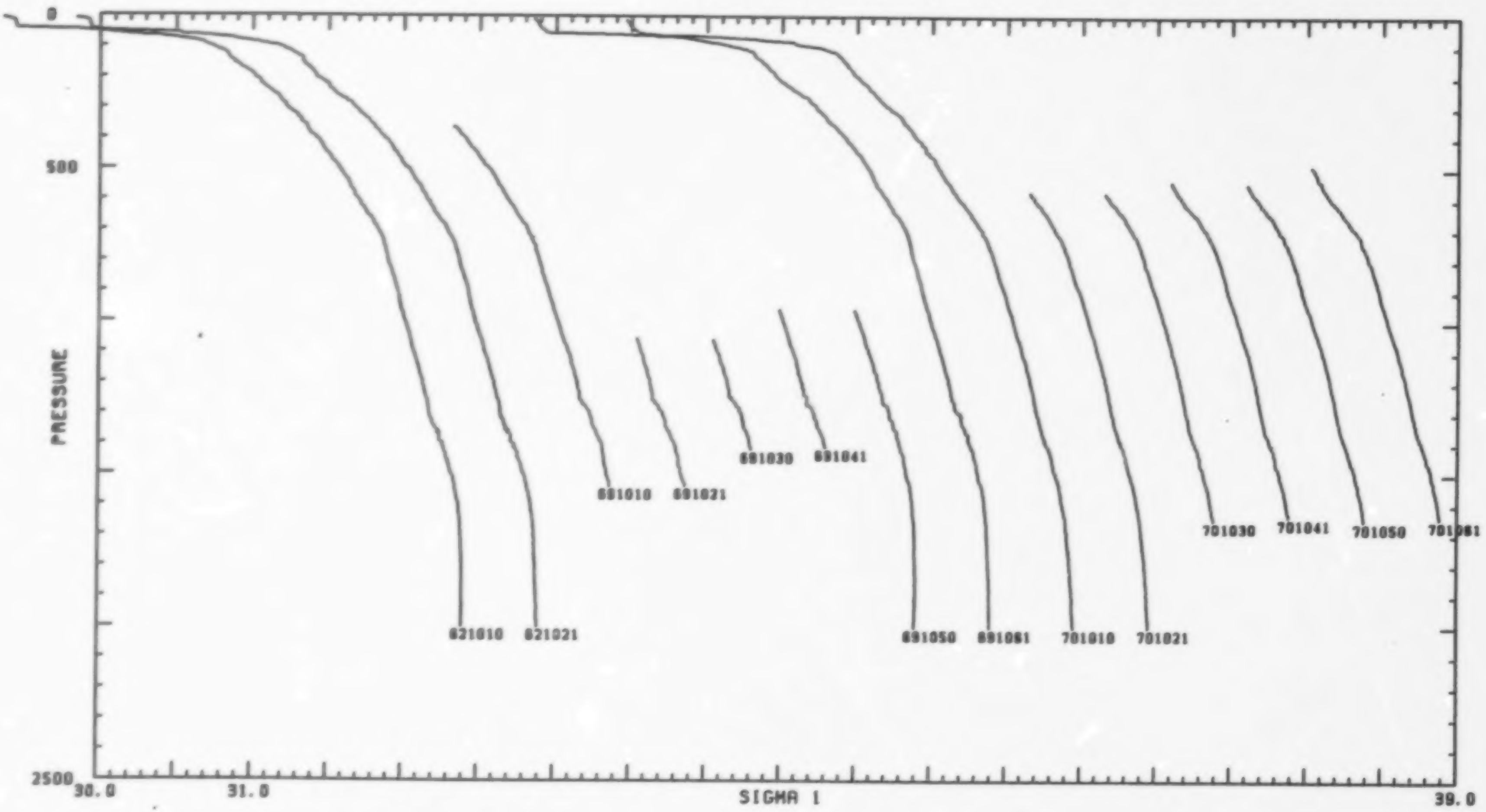
Survey I : October 1984



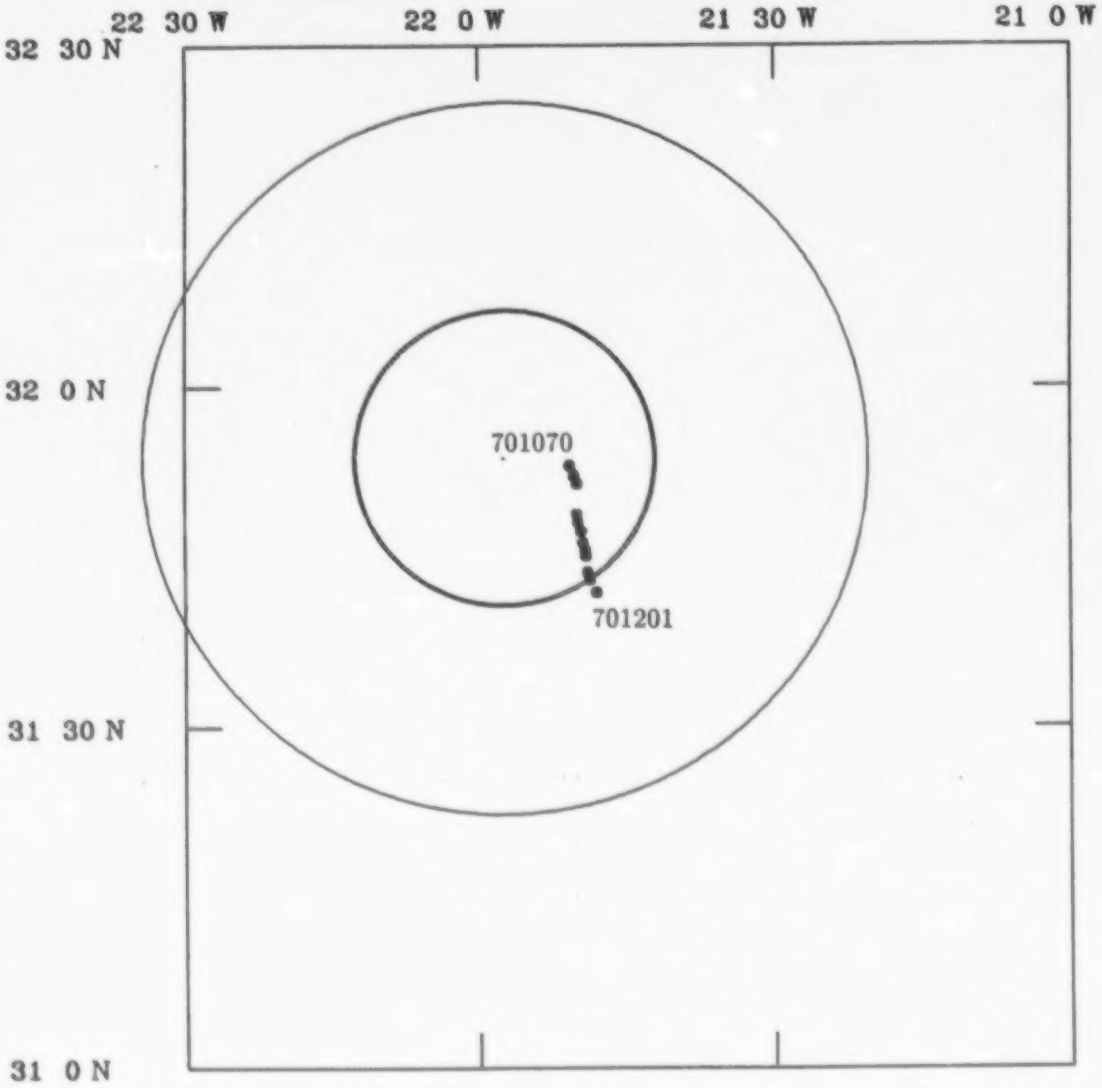


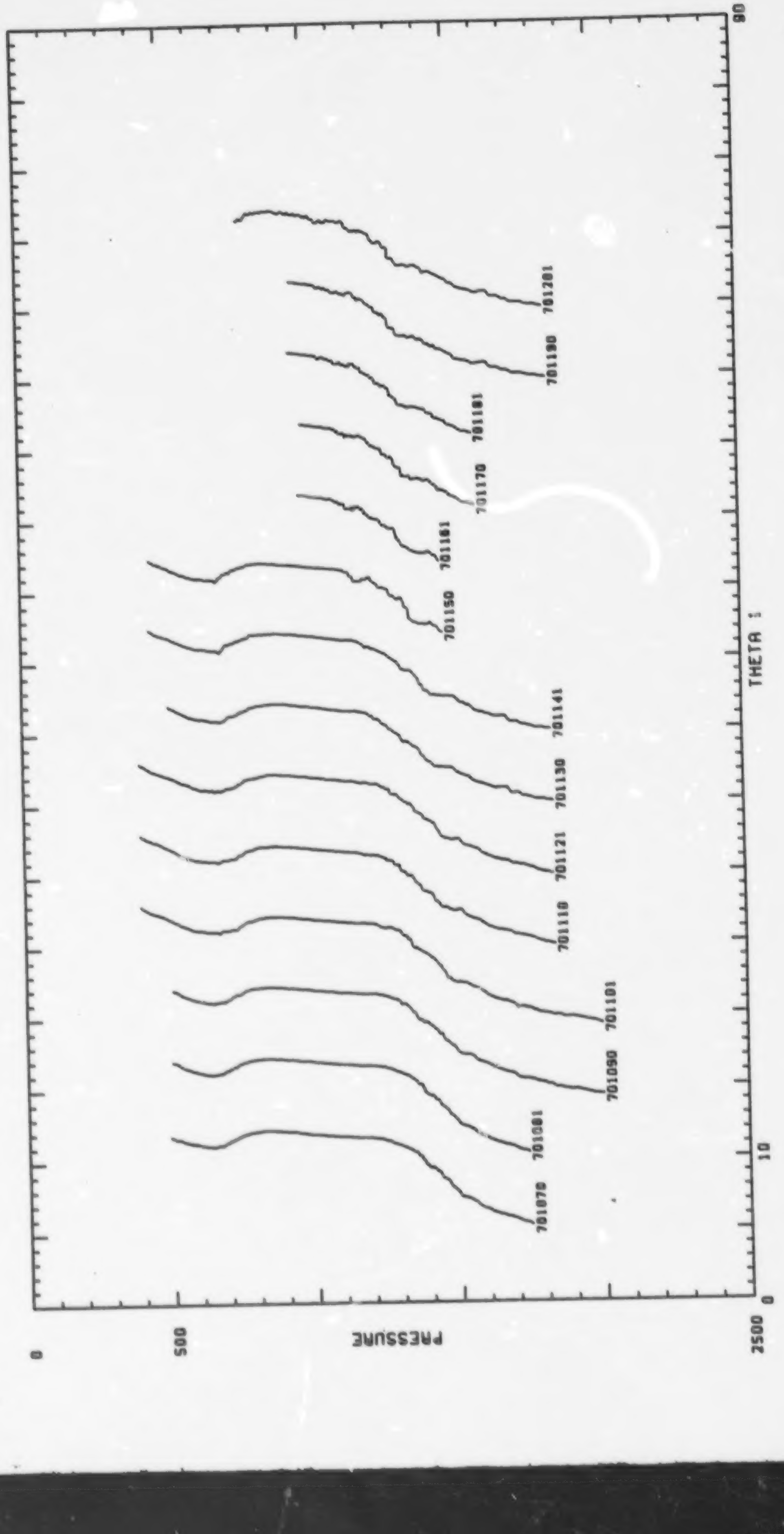
44
701081
701050
701041
701030
701021
701010
691061
691050
681041
681030
681021
681010
821021
21010
SALINITY
35
36
0
500
PRESSURE
2500

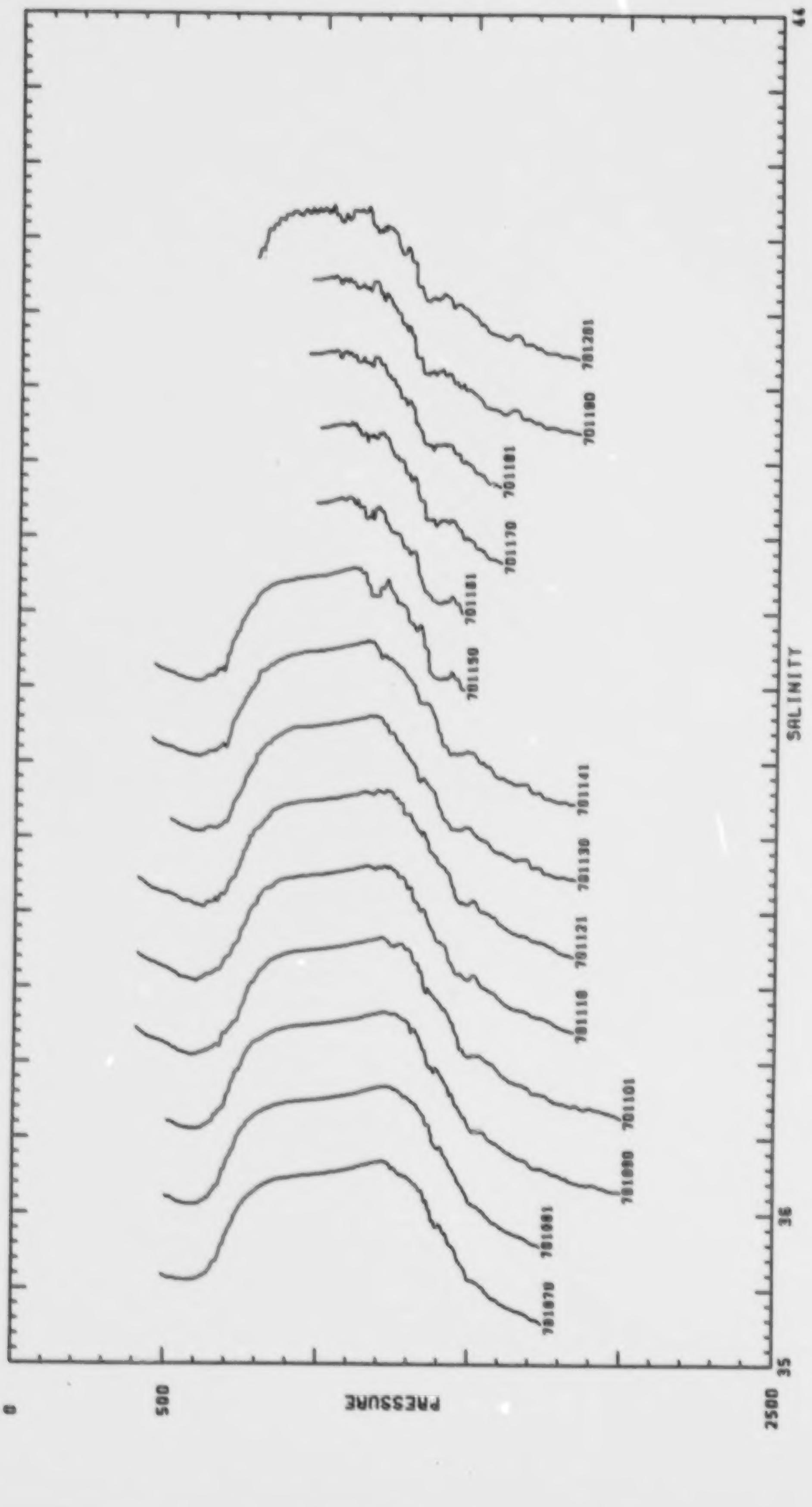

PRESSURE
THETA 1
0
500
2500
0
10
90
621010
621021
681010
681021
681030
681041
681050
681061
701010
701021
701030
701041
701050
701061

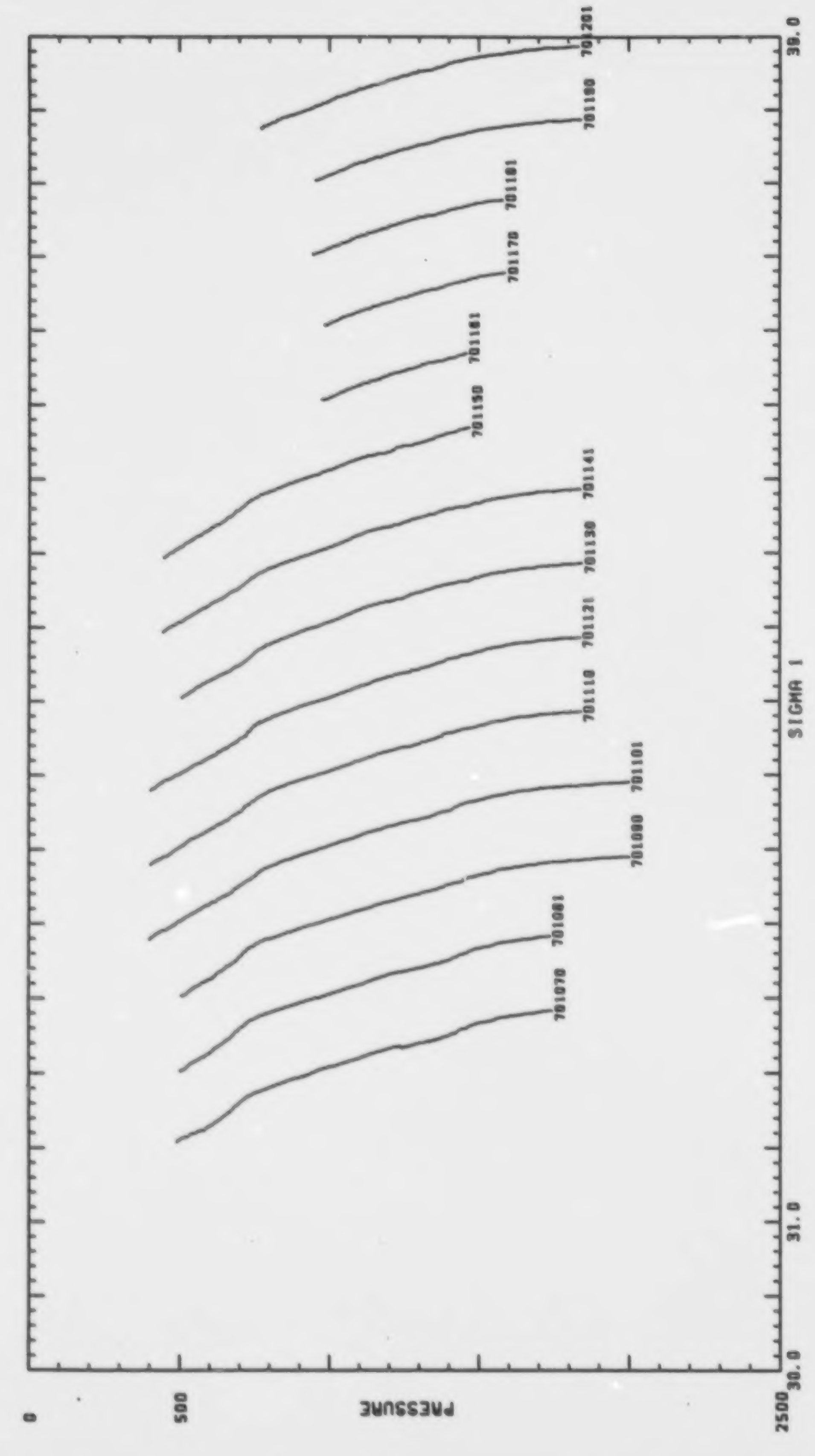

PRESSURE
0
500
2500
30.0
31.0
SIGMA 1
39.0
621010
621021
691010
691021
691030
691041
691050
691061
701010
701021
701030
701041
701050
701061

Survey I : October 1984

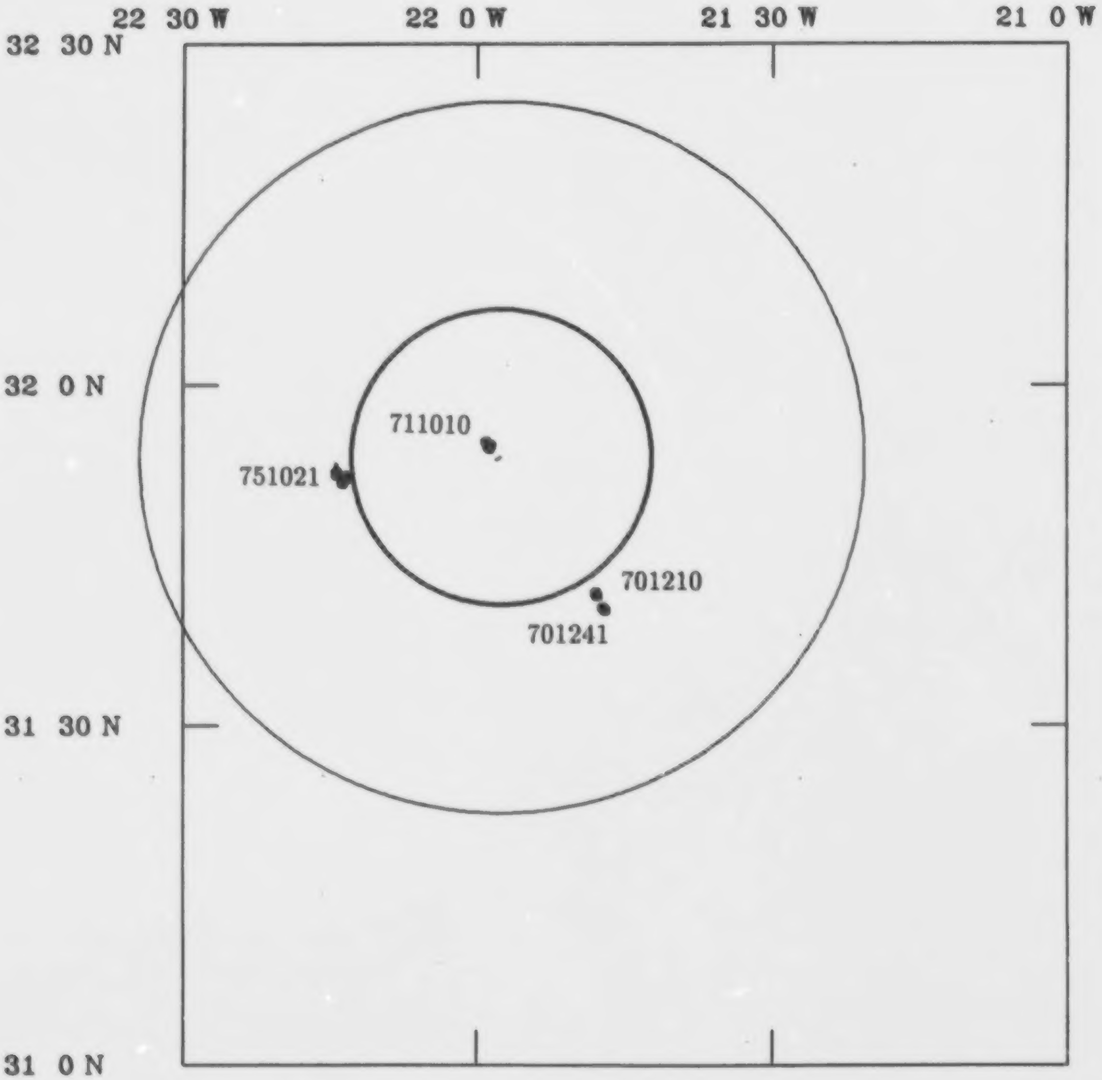


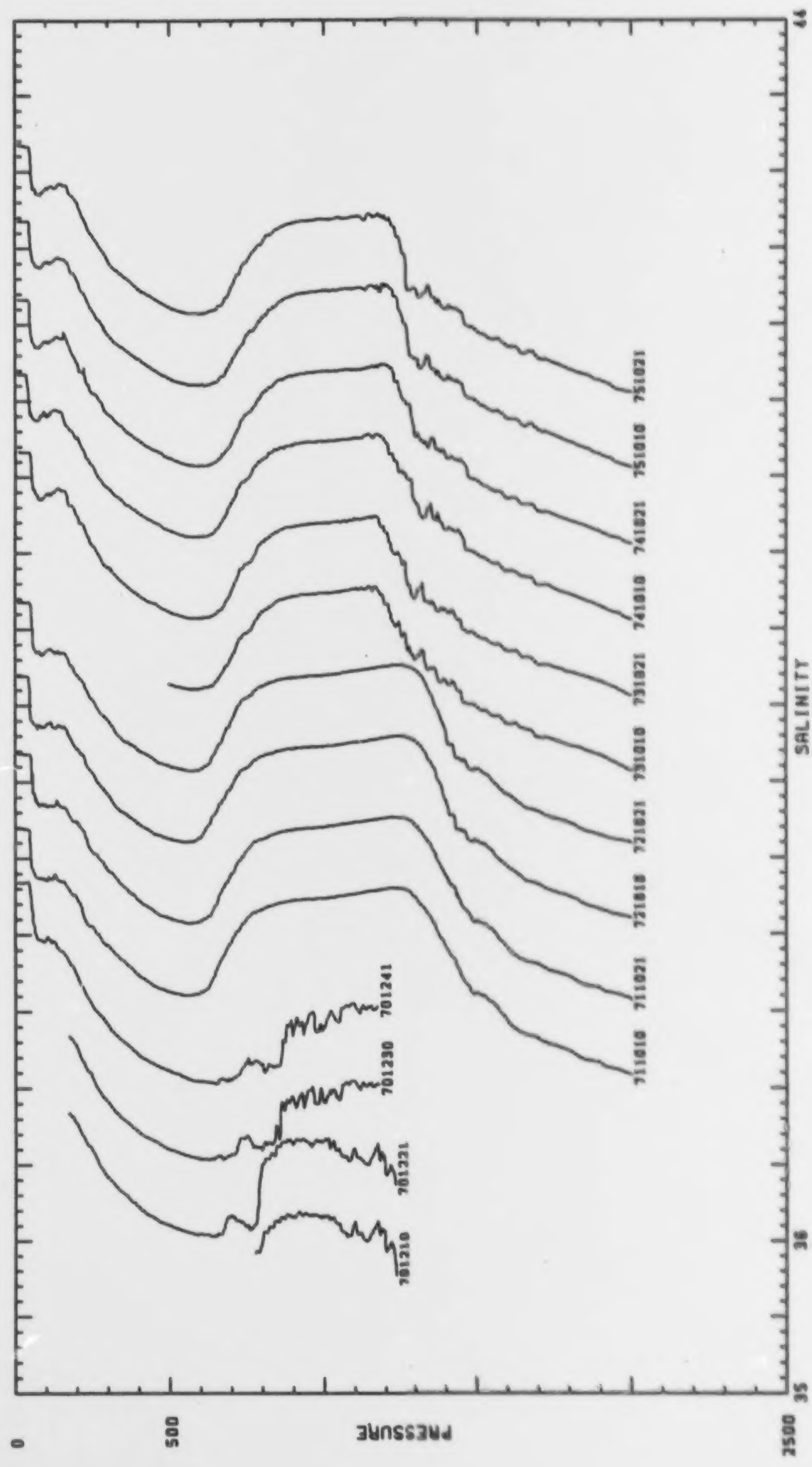

PRESSURE
0
500
2500
THETA 1
0
10
90
701070
701081
701090
701101
701110
701121
701130
701141
701150
701161
701170
701181
701190
701201

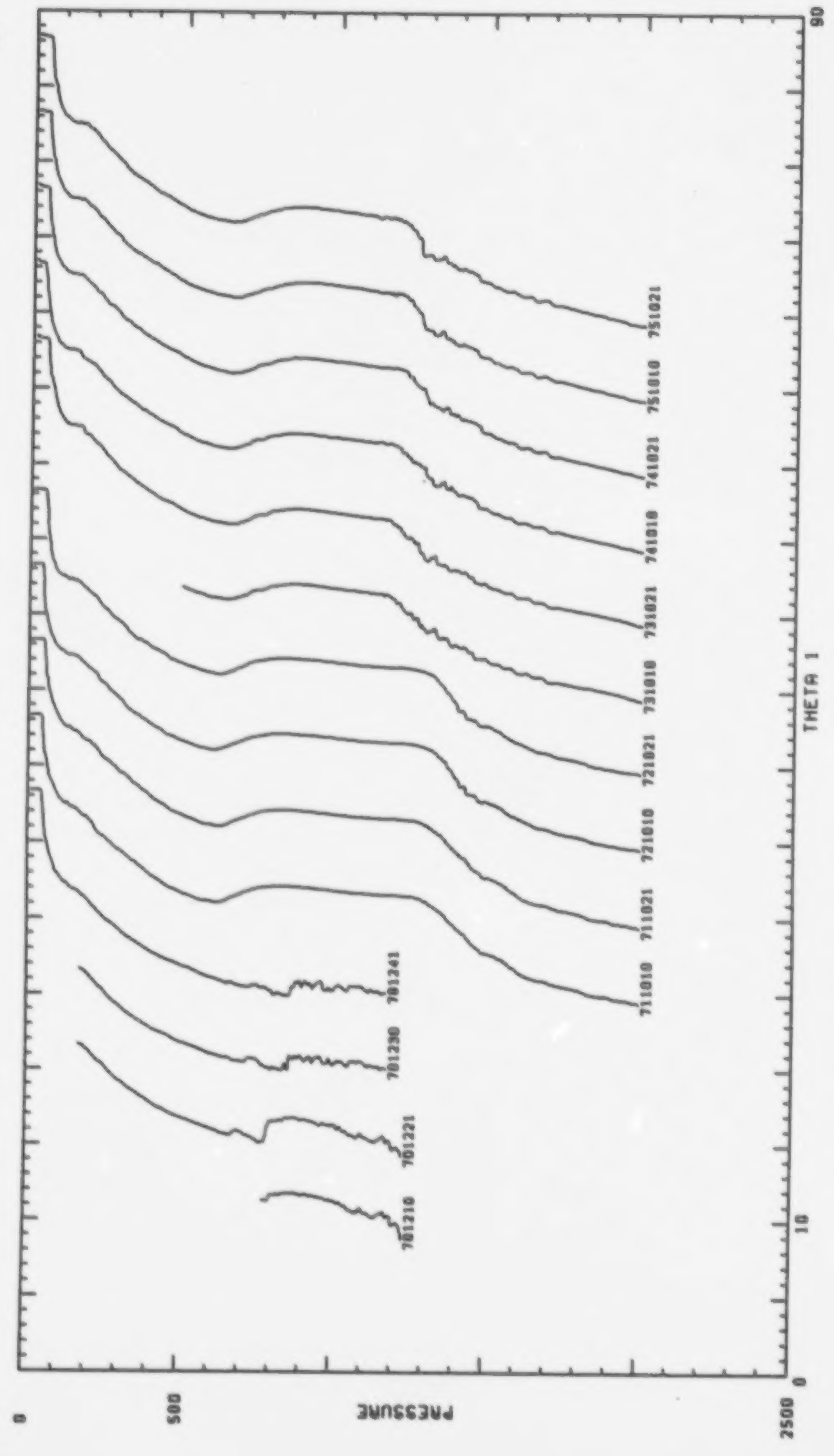

PRESSURE
0
500
2500
SALINITY
35
36
44
701070
701081
701090
701101
701110
701121
701130
701141
701150
701181
701170
701181
701190
701201

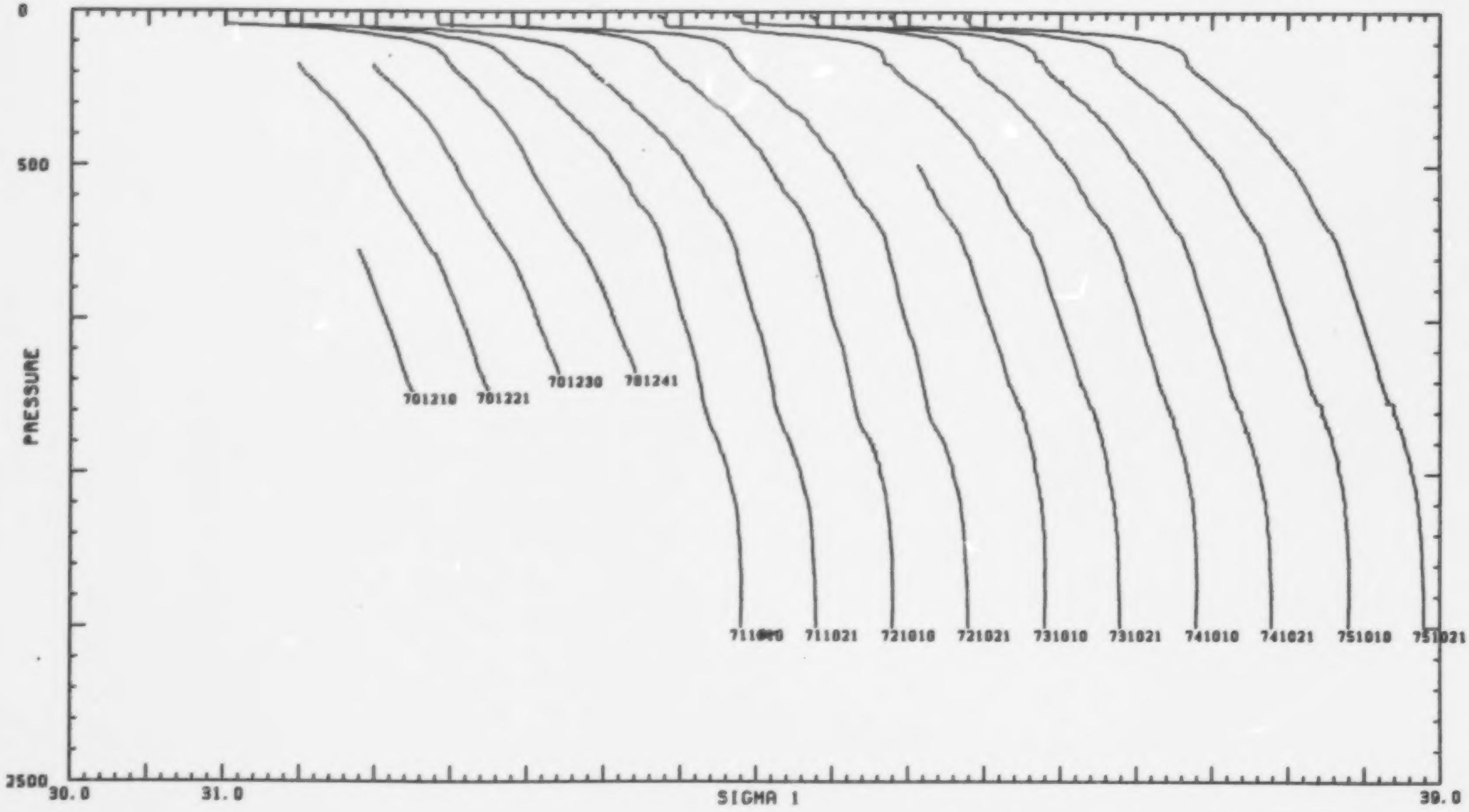

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
701070
701081
701090
701101
701110
701121
701130
701141
701150
701161
701170
701181
701190
701201

Survey I : October 1984

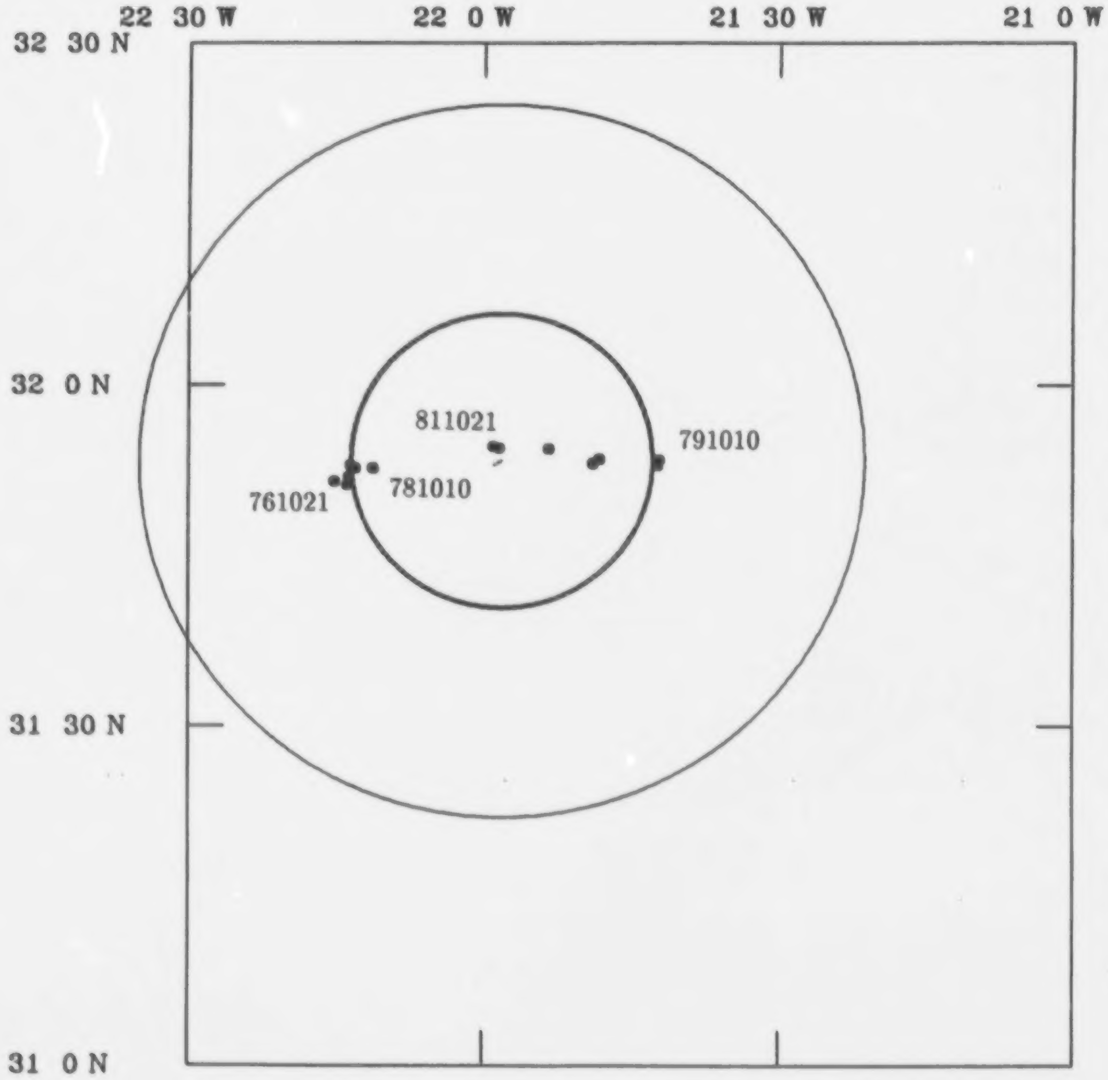


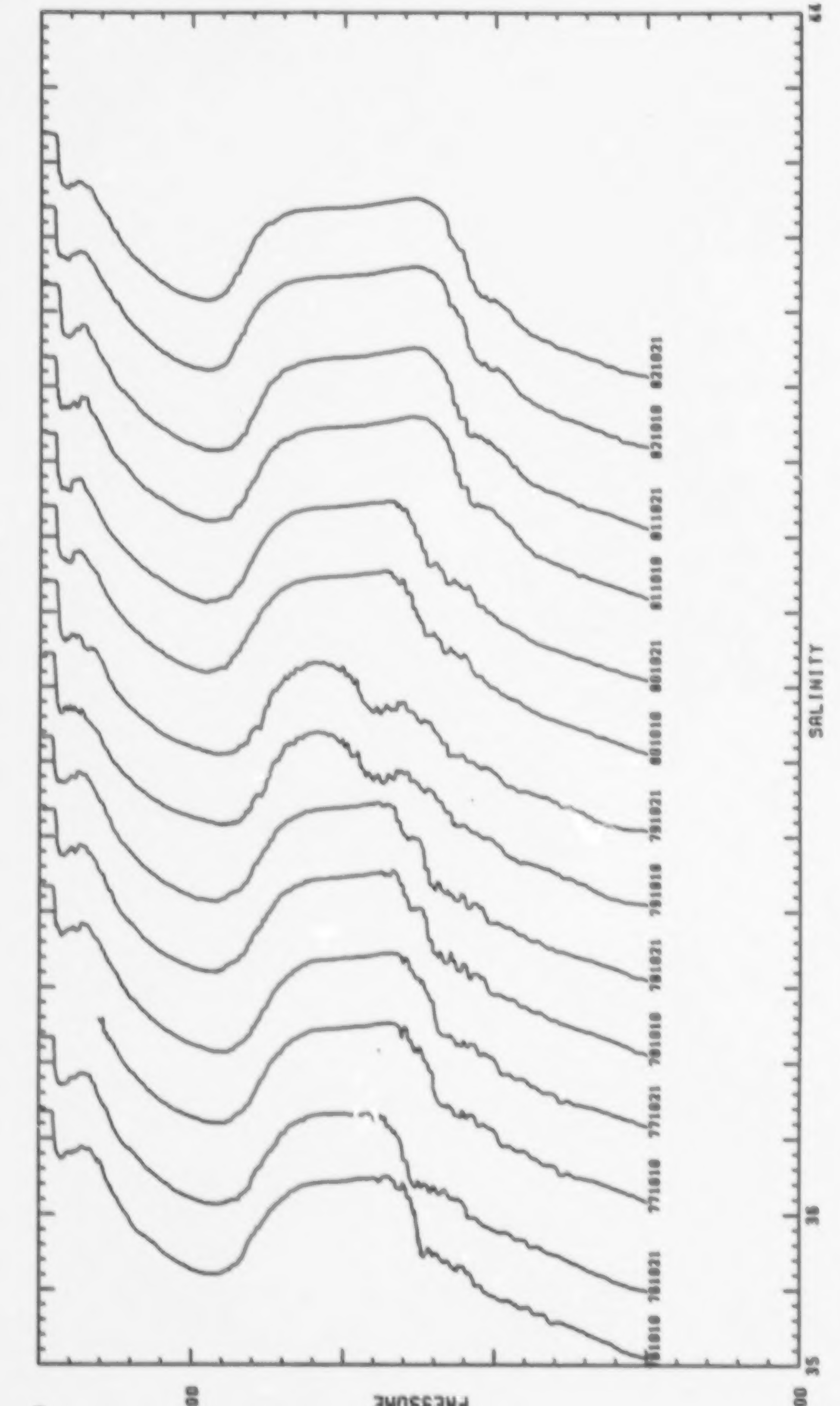

PRESSURE
0
500
2500
SALINITY
35
36
44
751021
751010
741021
741010
731021
731010
721021
721010
711021
711010
701241
701230
701221
701210

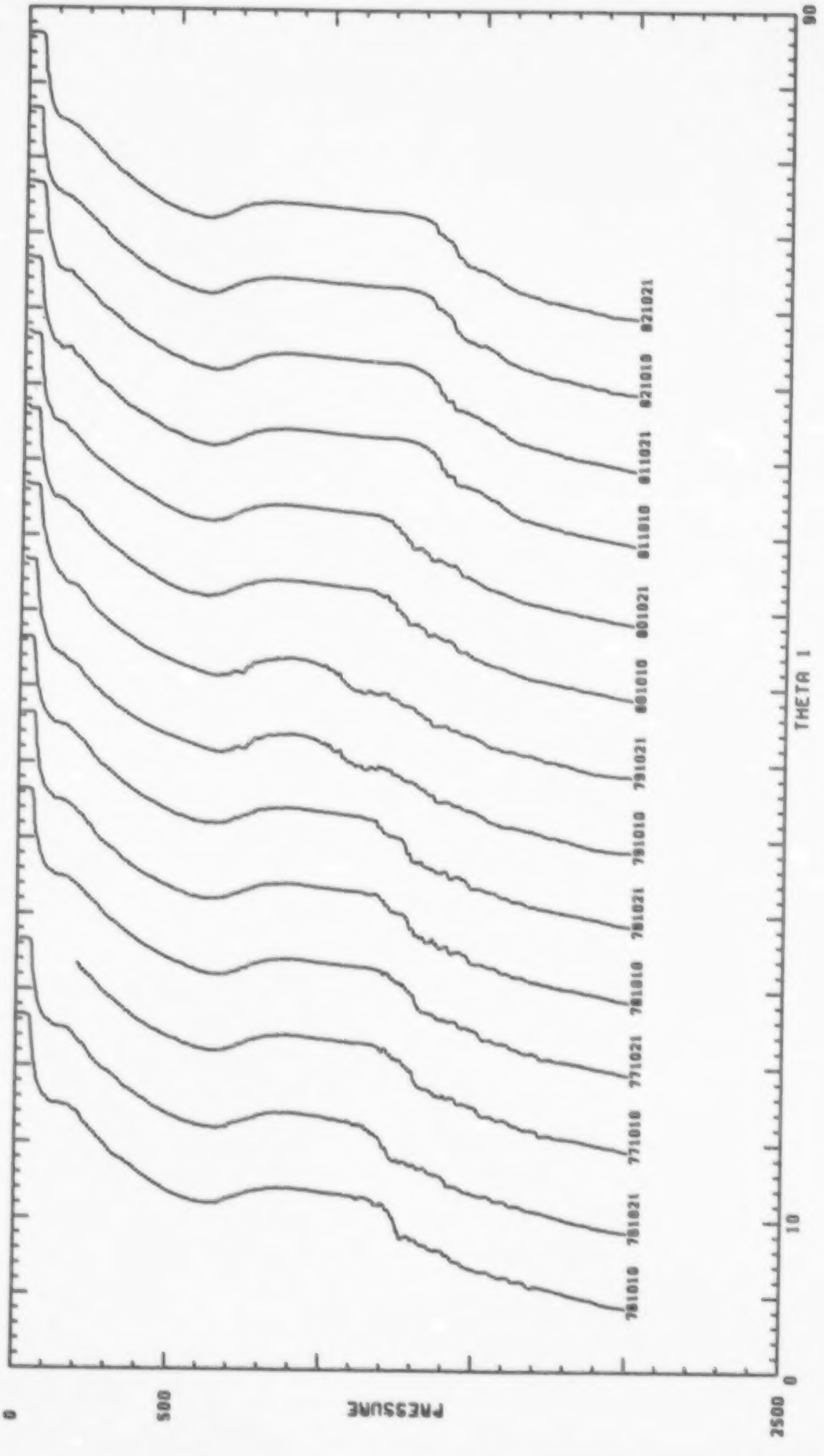

PRESSURE
0
500
2500
THETA 1
0
10
90
751021
751010
741021
741010
731021
731010
721021
721010
711021
711010
701241
701230
701221
701210

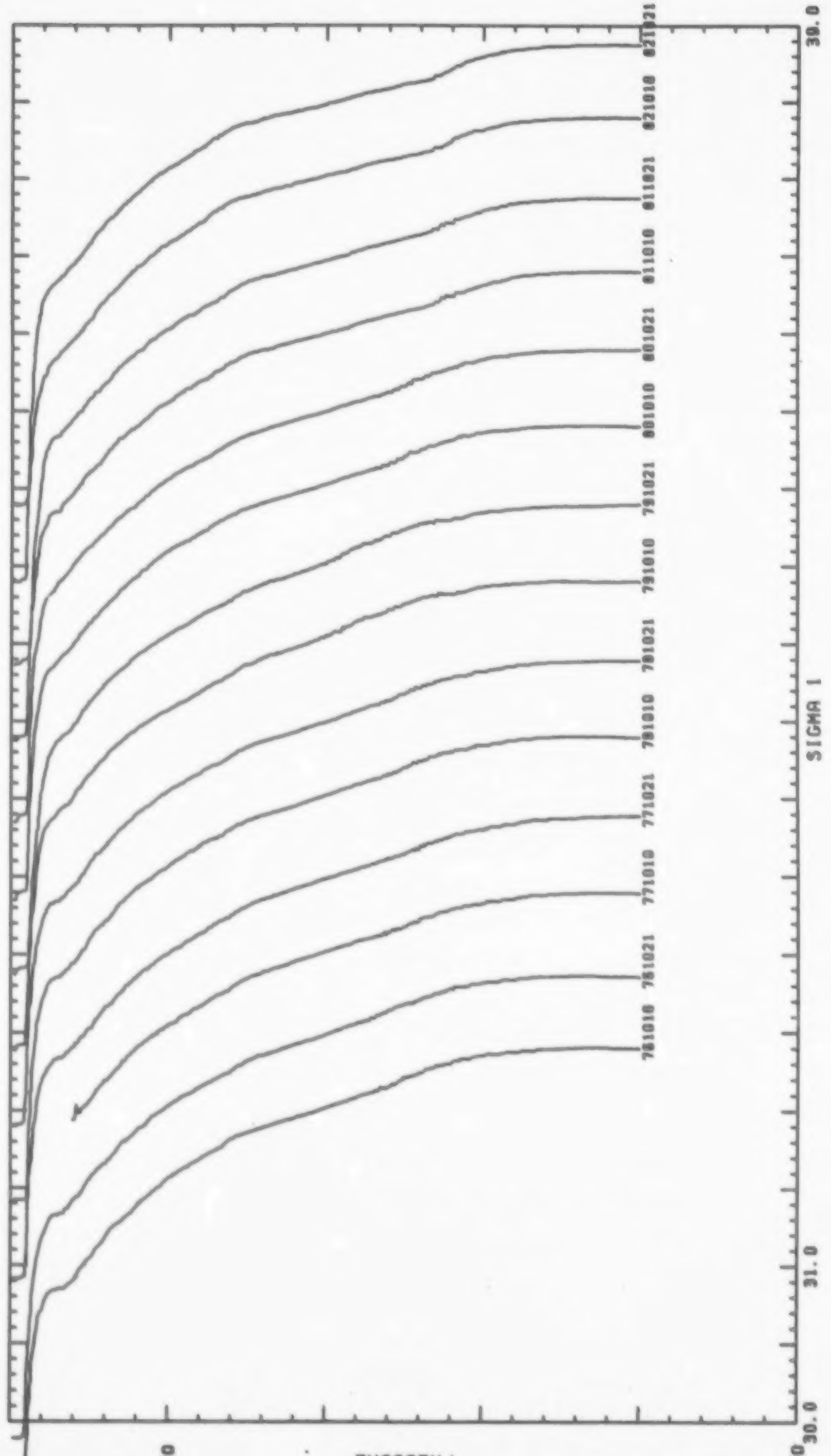

0
500
2500
PRESSURE
30.0
31.0
SIGMA 1
39.0
701210
701221
701230
701241
711021
721010
721021
731010
731021
741010
741021
751010
751021

Survey I : October 1984

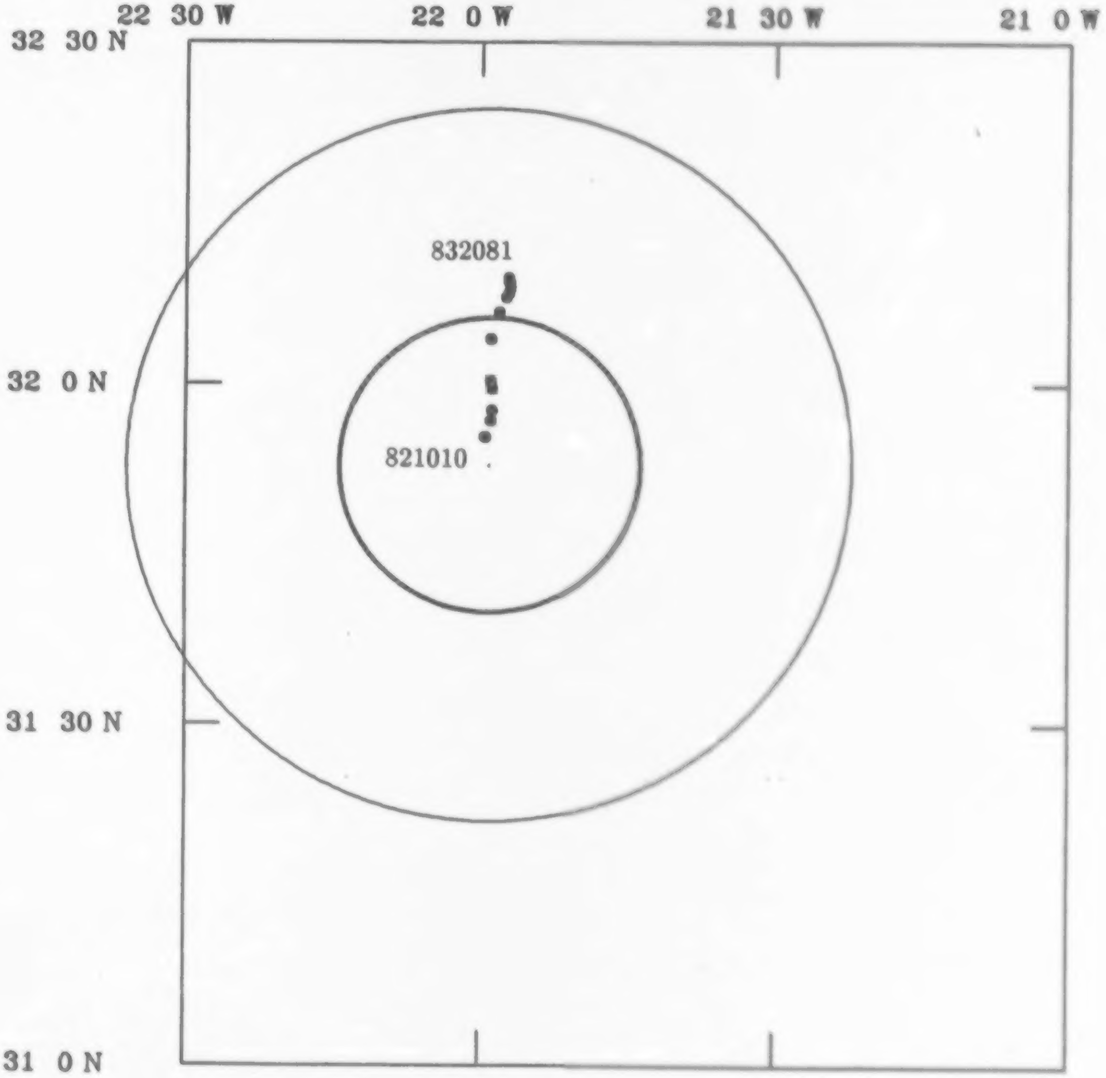


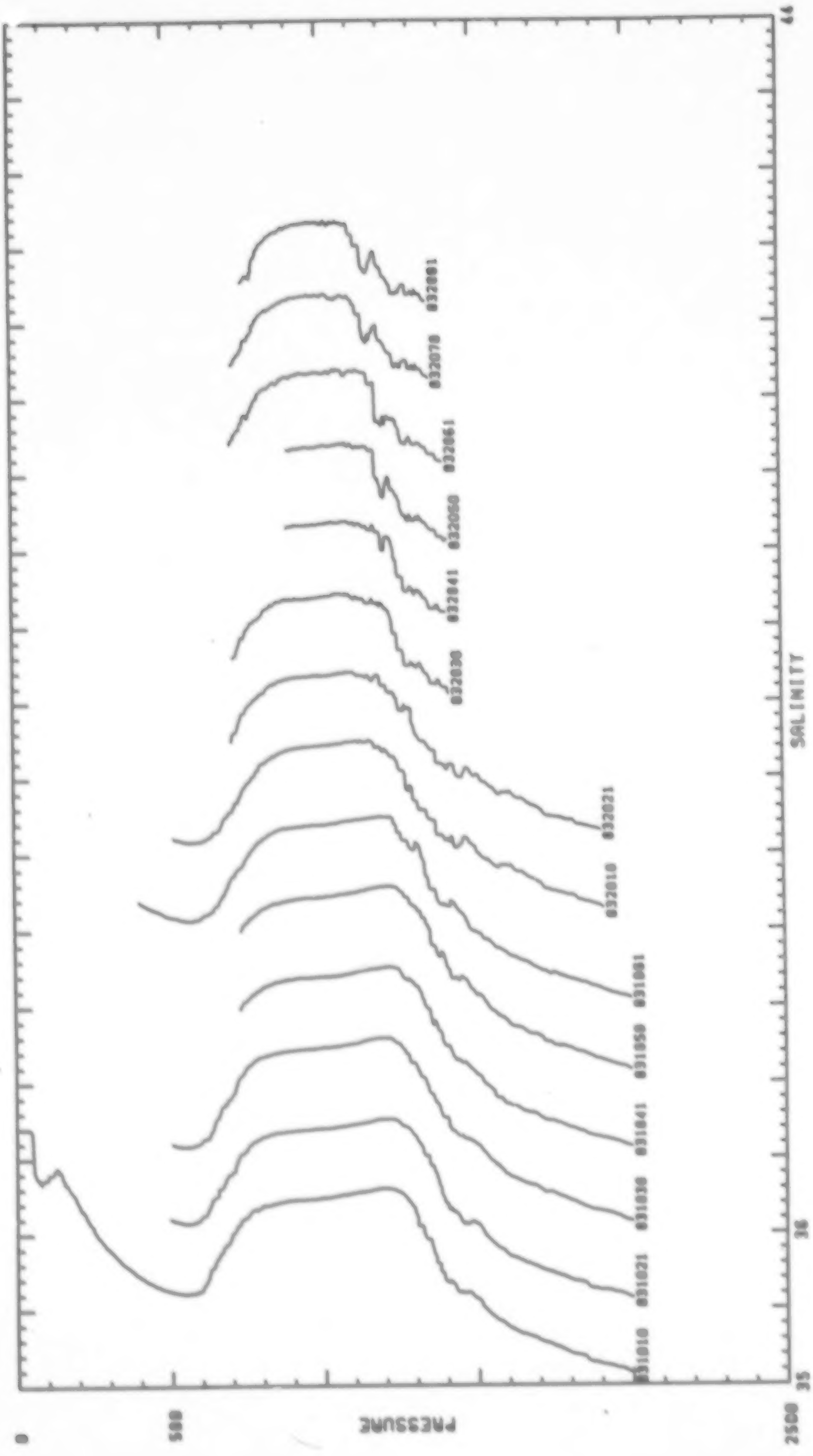

SALINITY
35
36
PRESSURE
0
500
2500

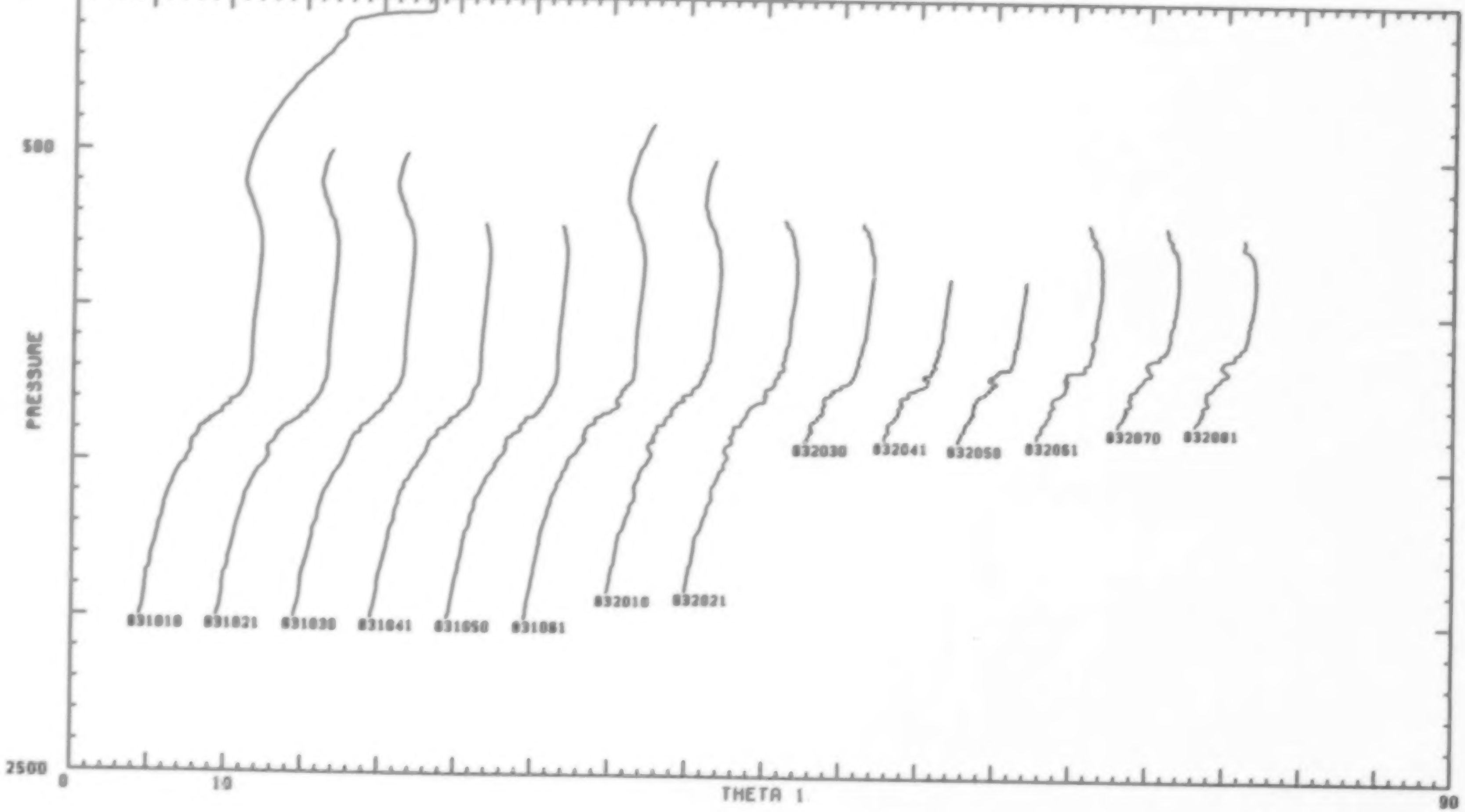

PRESSURE
0
500
2500
THETA 1
0
10
90

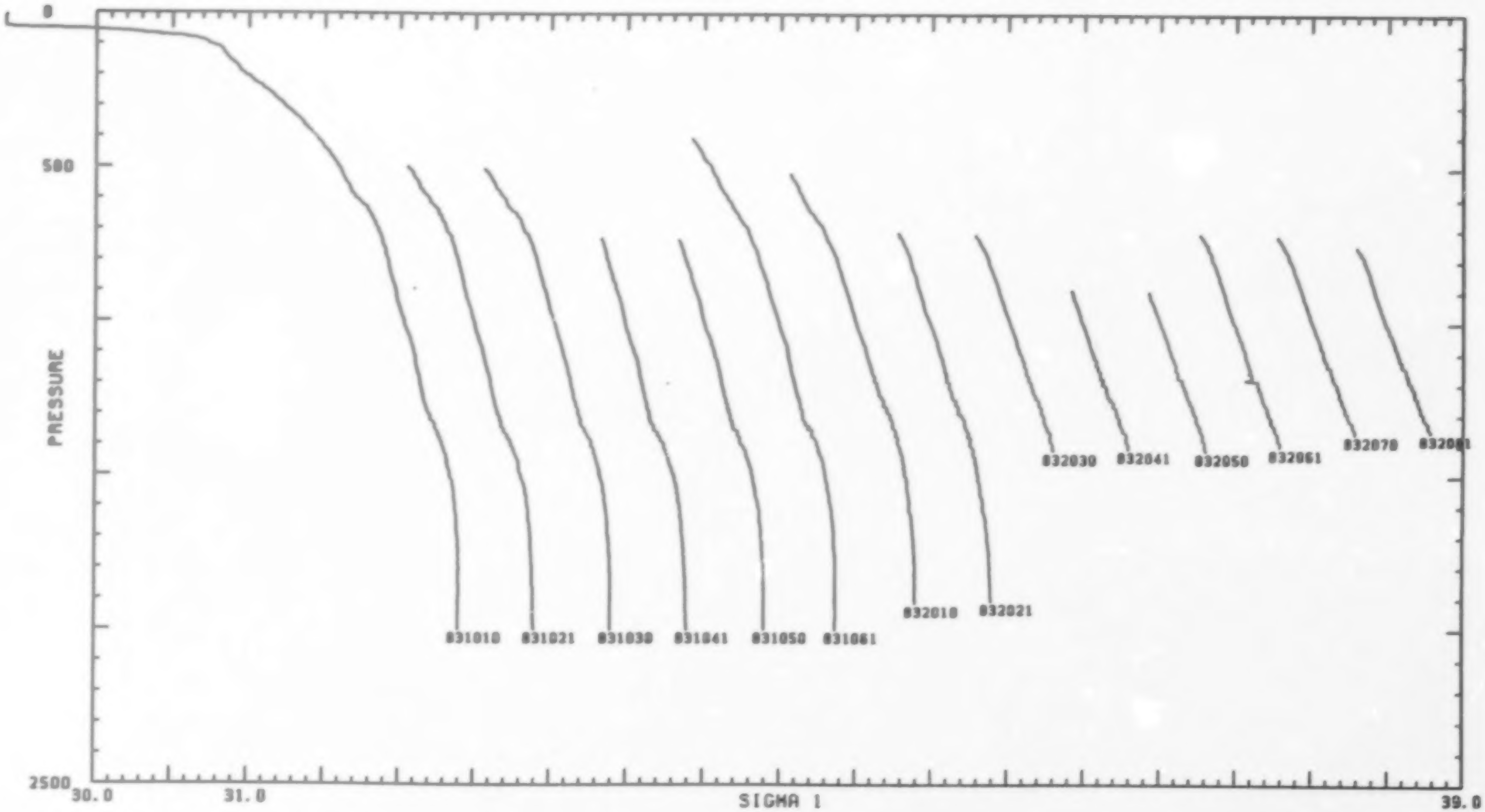

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
30.0
761010
761021
771010
771021
781010
781021
791010
791021
801010
801021
811010
811021
821010
821021

Survey I : October 1984

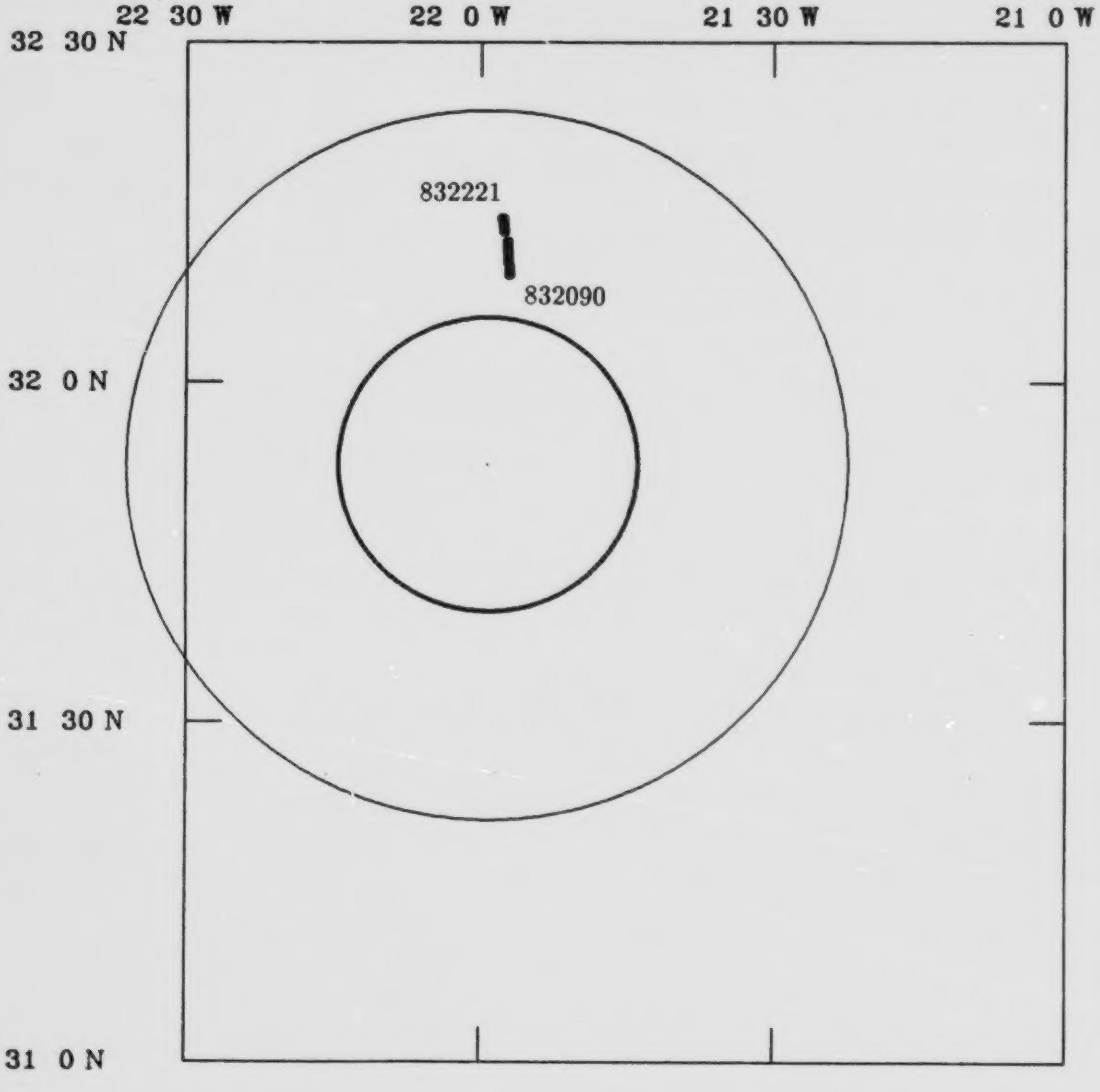


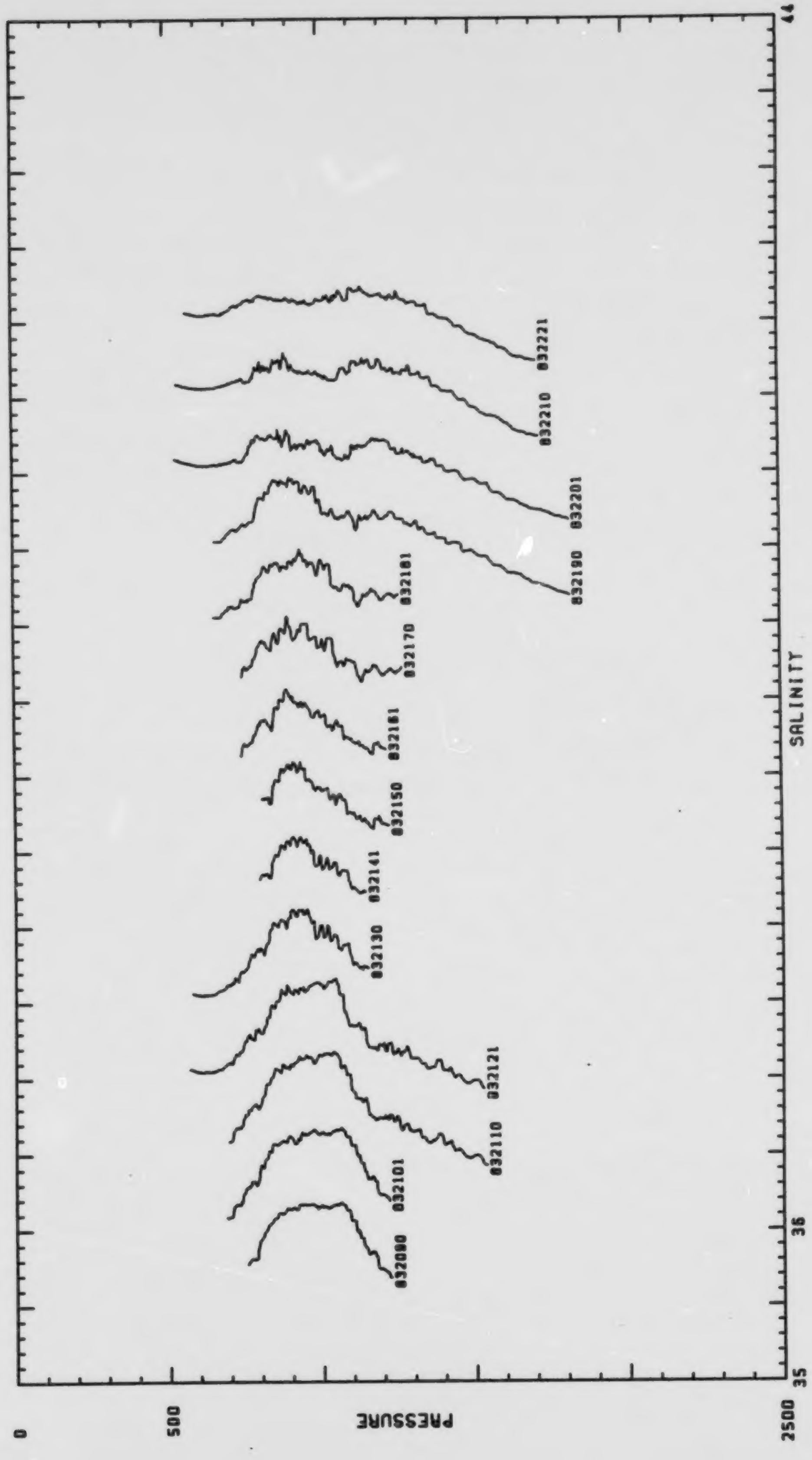

SALINITY
PRESSURE
0
500
2500

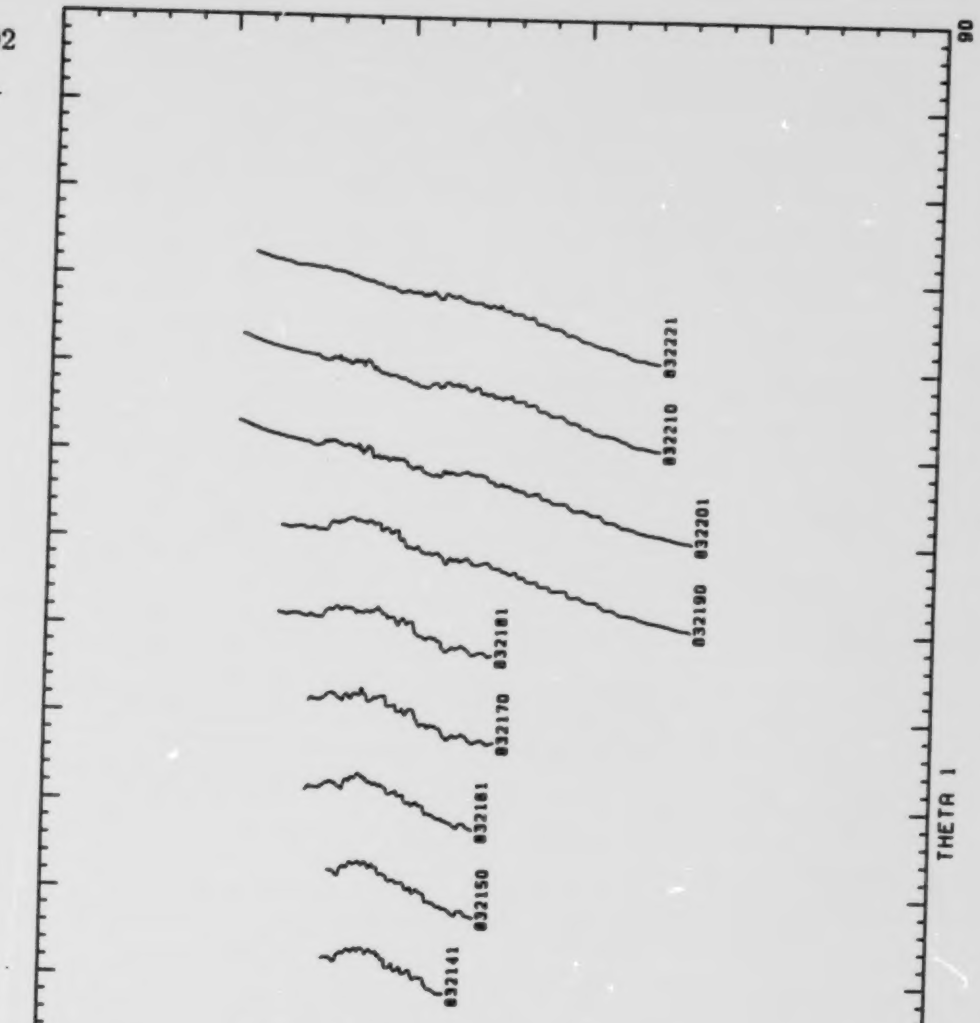

0
500
2500
PRESSURE
0
10
90
THETA 1
831010
831021
831030
831041
831050
831061
832010
832021
832030
832041
832050
832061
832070
832081

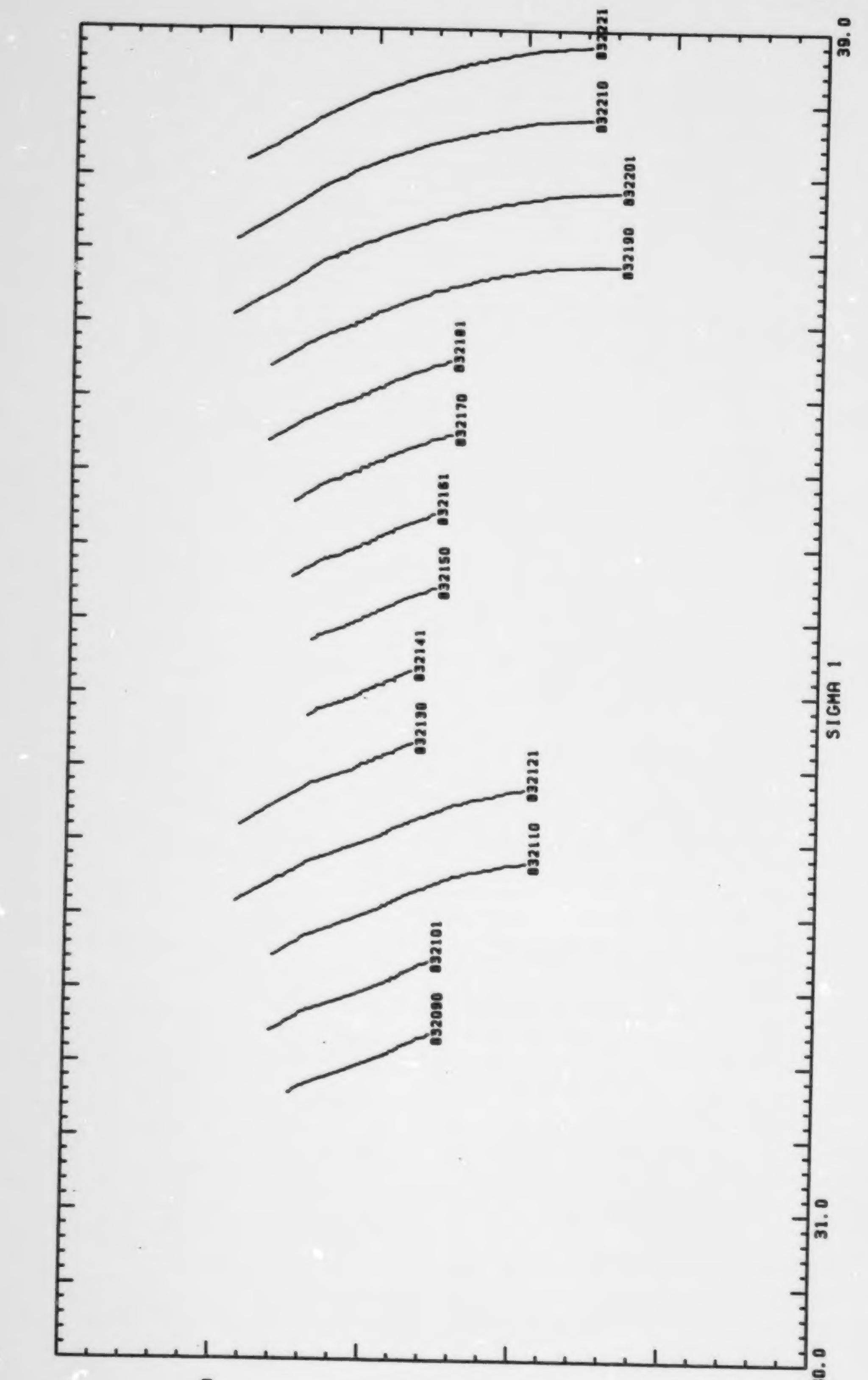

0
500
2500
PRESSURE
30.0
31.0
SIGMA 1
39.0
831010
831021
831030
831041
831050
831061
832010
832021
832030
832041
832050
832061
832070
832081

Survey I : October 1984

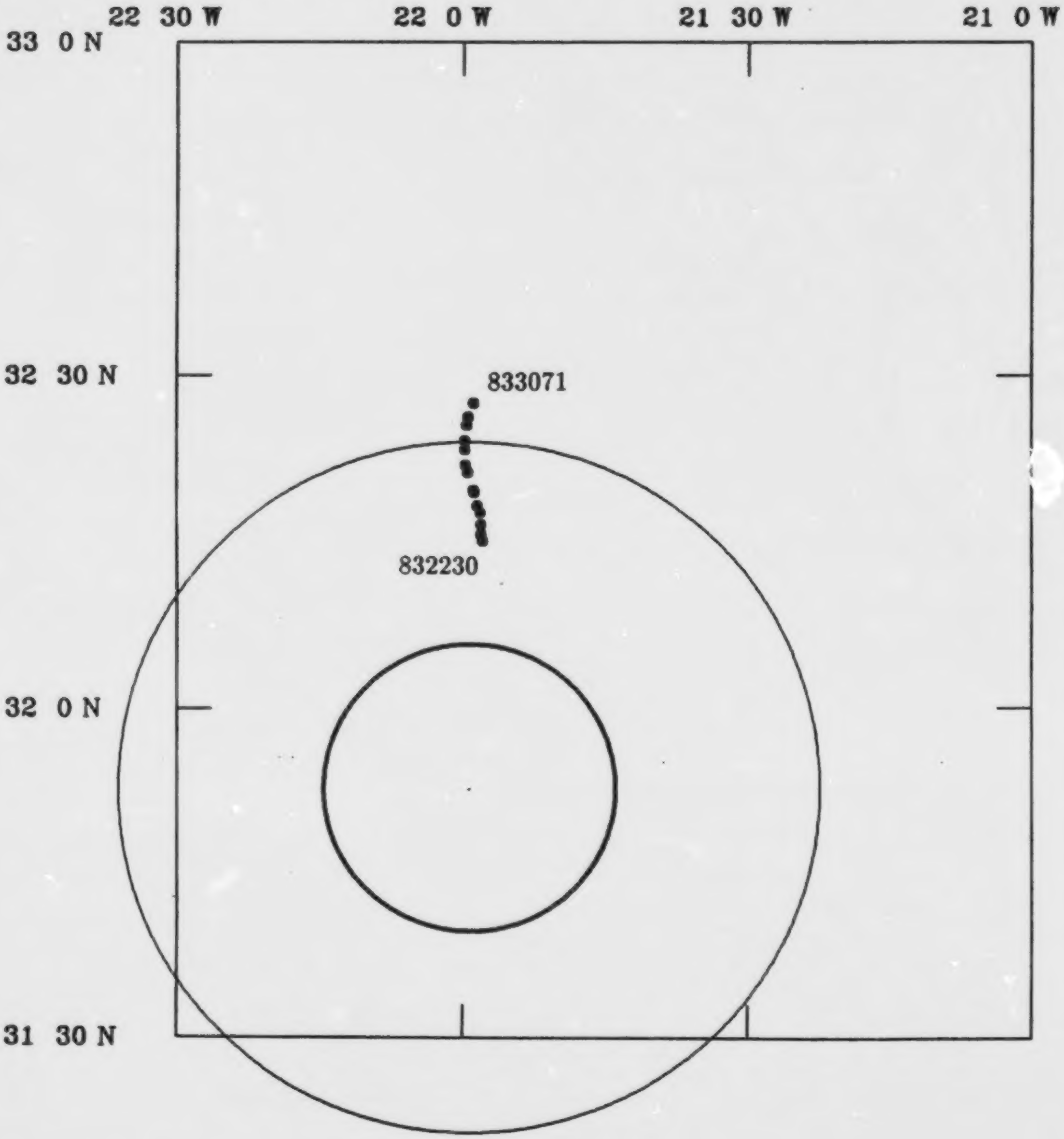


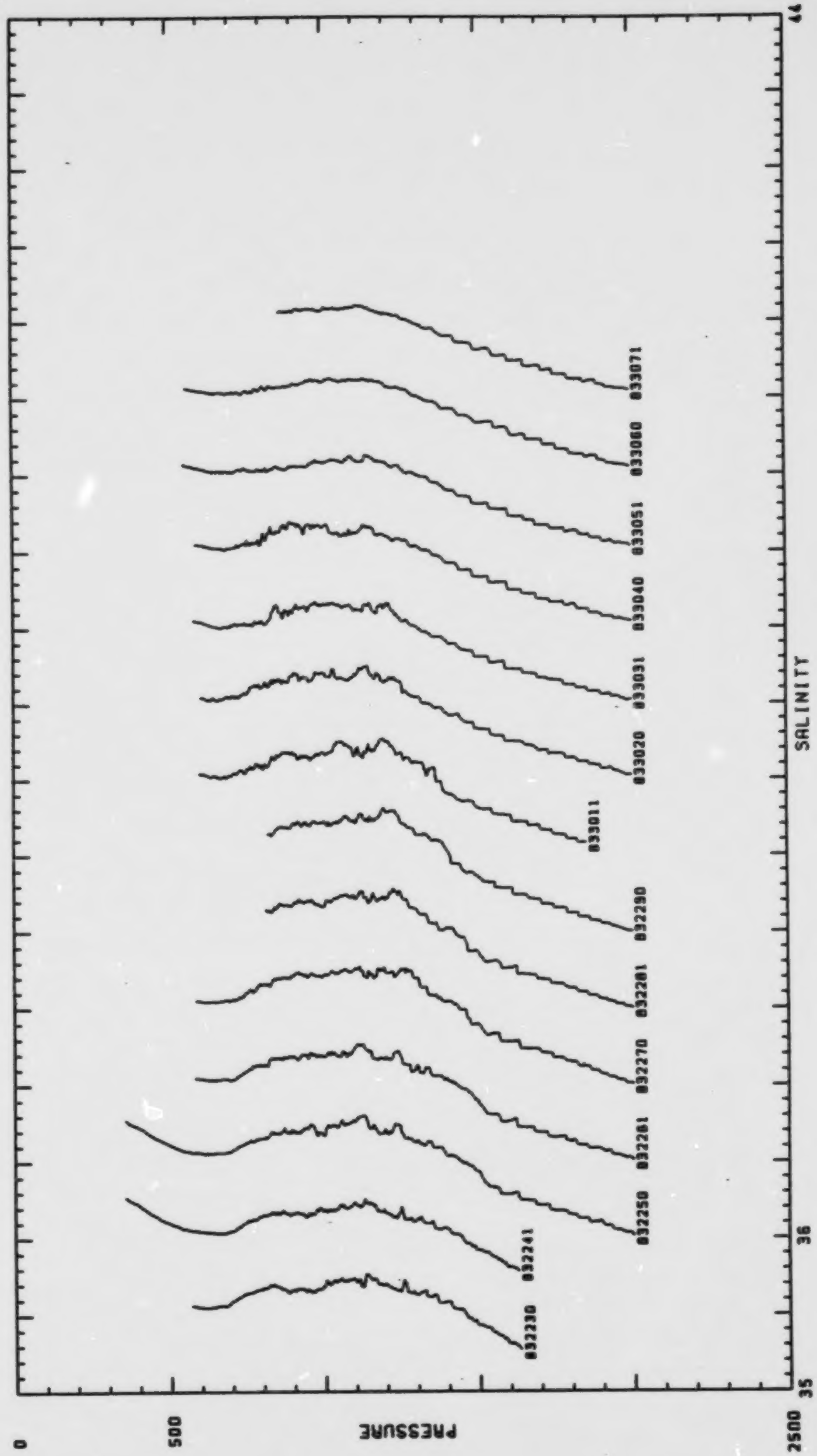

PRESSURE
0
500
2500
SALINITY
35
36
44
832090
832101
832110
832121
832130
832141
832150
832161
832170
832181
832190
832201
832210
832221

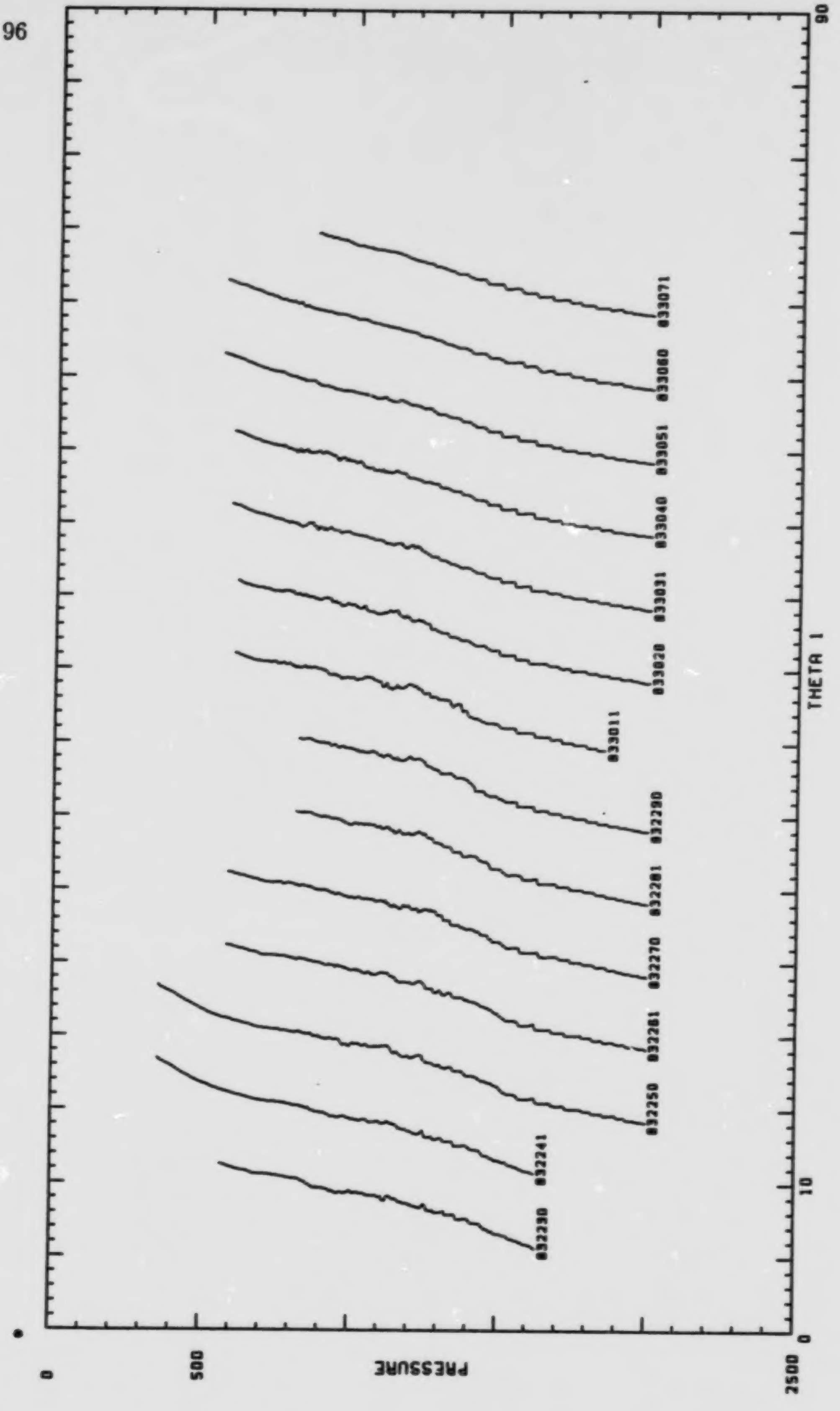

PRESSURE
0
500
2500
THETA 1
0
10
90
032090
032101
032110
032121
032130
032141
032150
032161
032170
032181
032190
032201
032210
032221


PRESSURE
0
500
2500
30.0
31.0
39.0
SIGMA 1
832090
832101
832110
832121
832130
832141
832150
832161
832170
832181
832190
832201
832210
832221

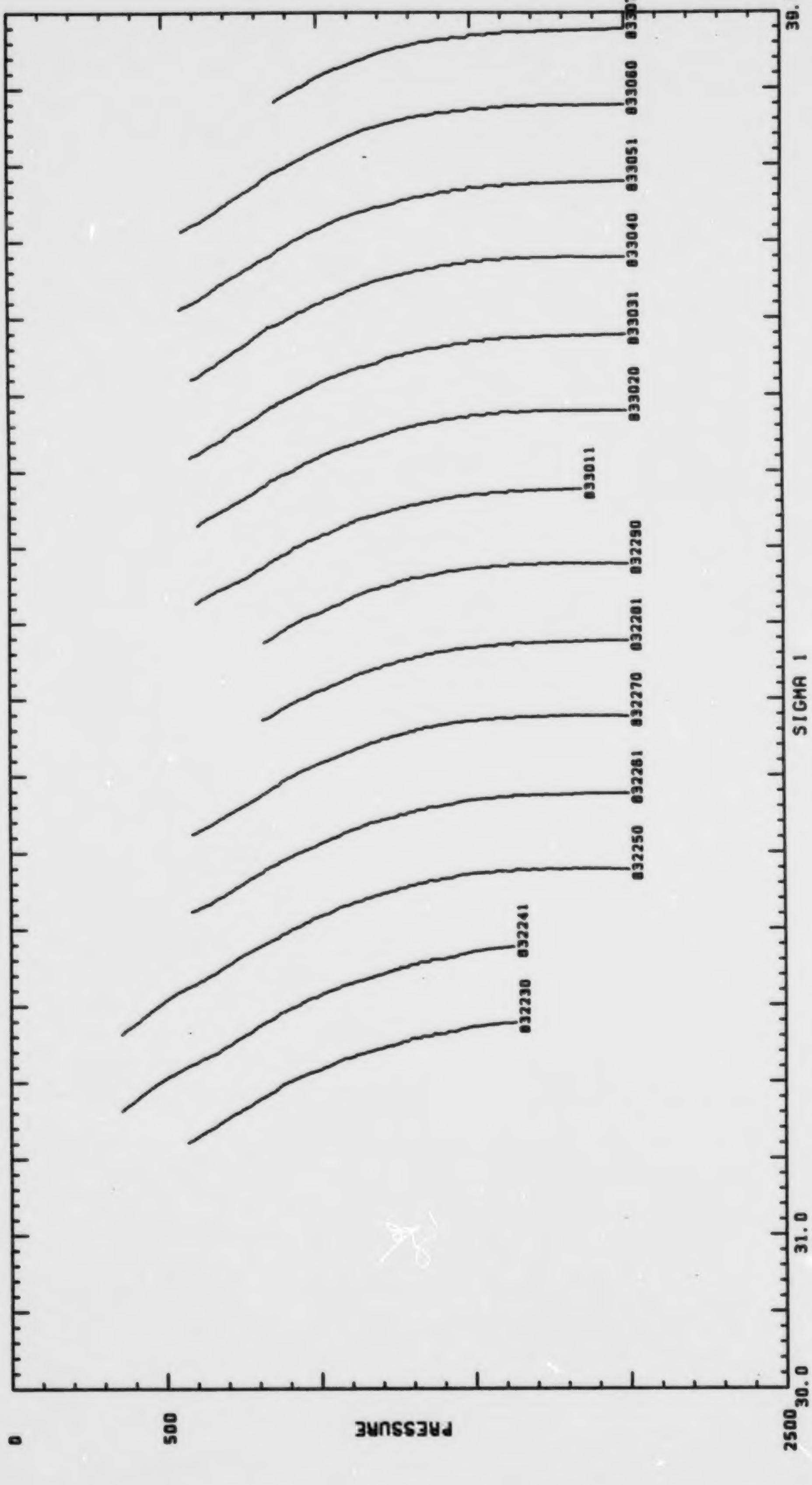
Survey I : October 1984



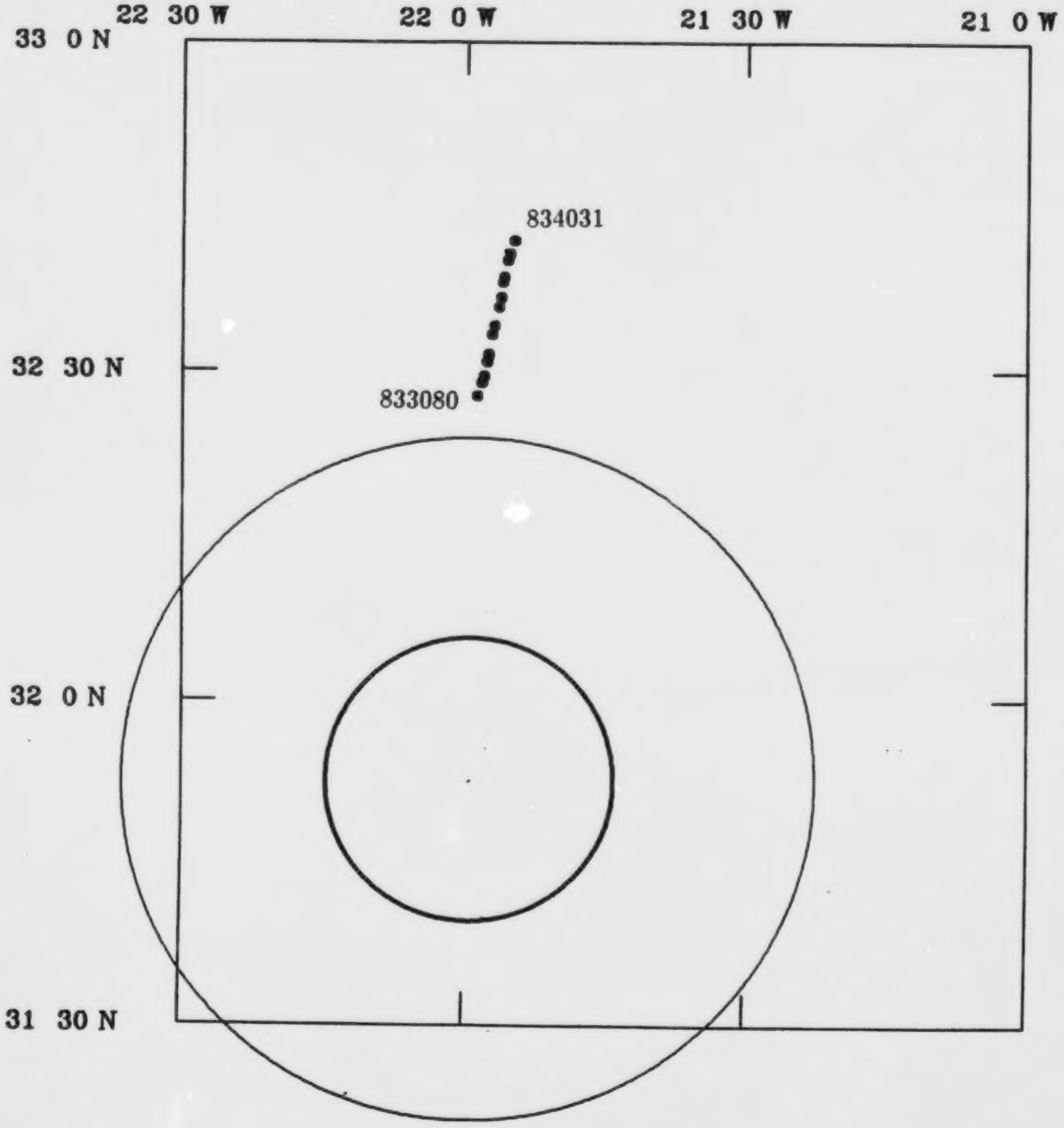

SALINITY
PRESSURE
0
500
2500
35
36
44
032230
032241
032250
032261
032270
032281
032290
033011
033020
033031
033040
033051
033060
033071

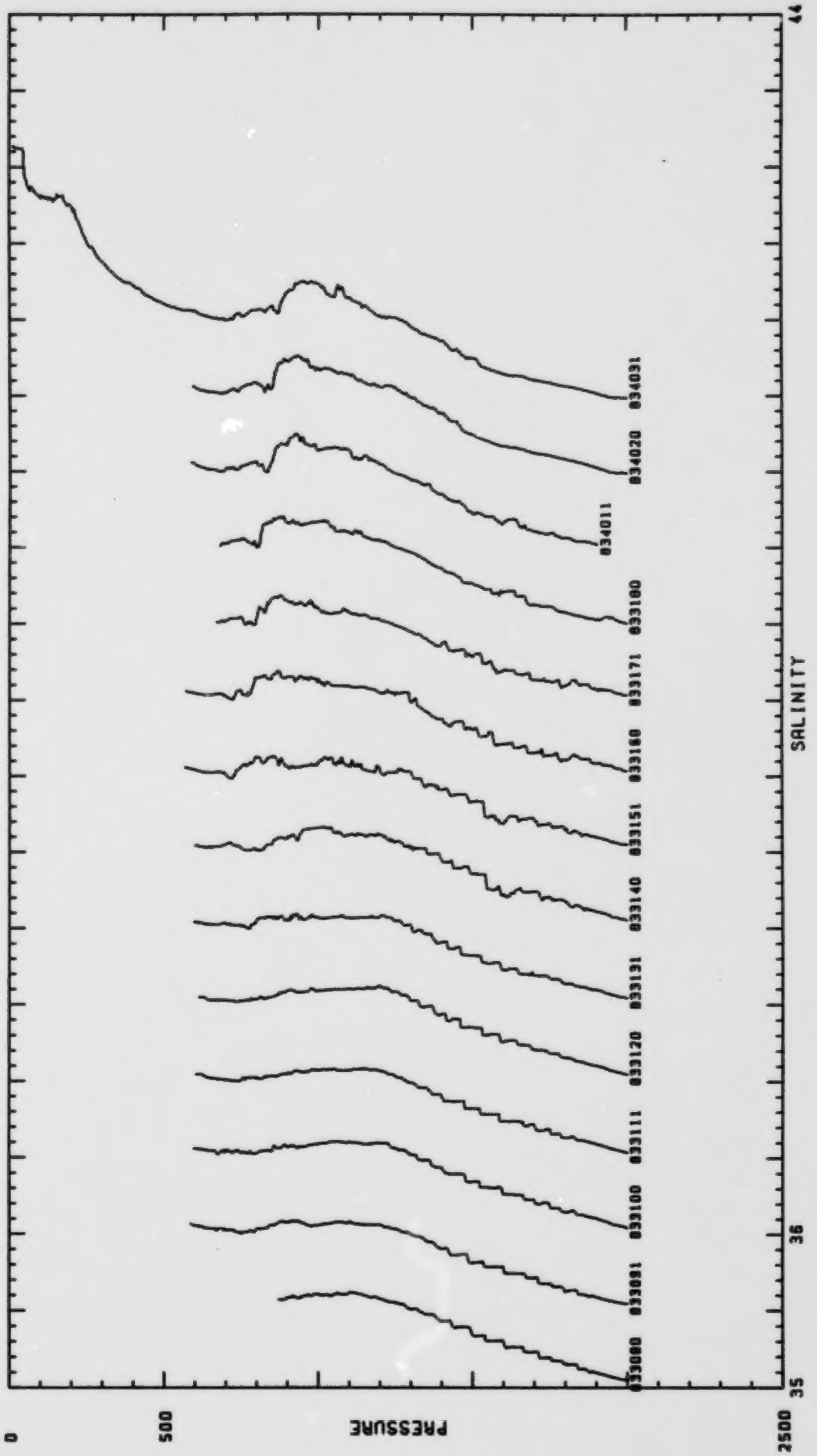


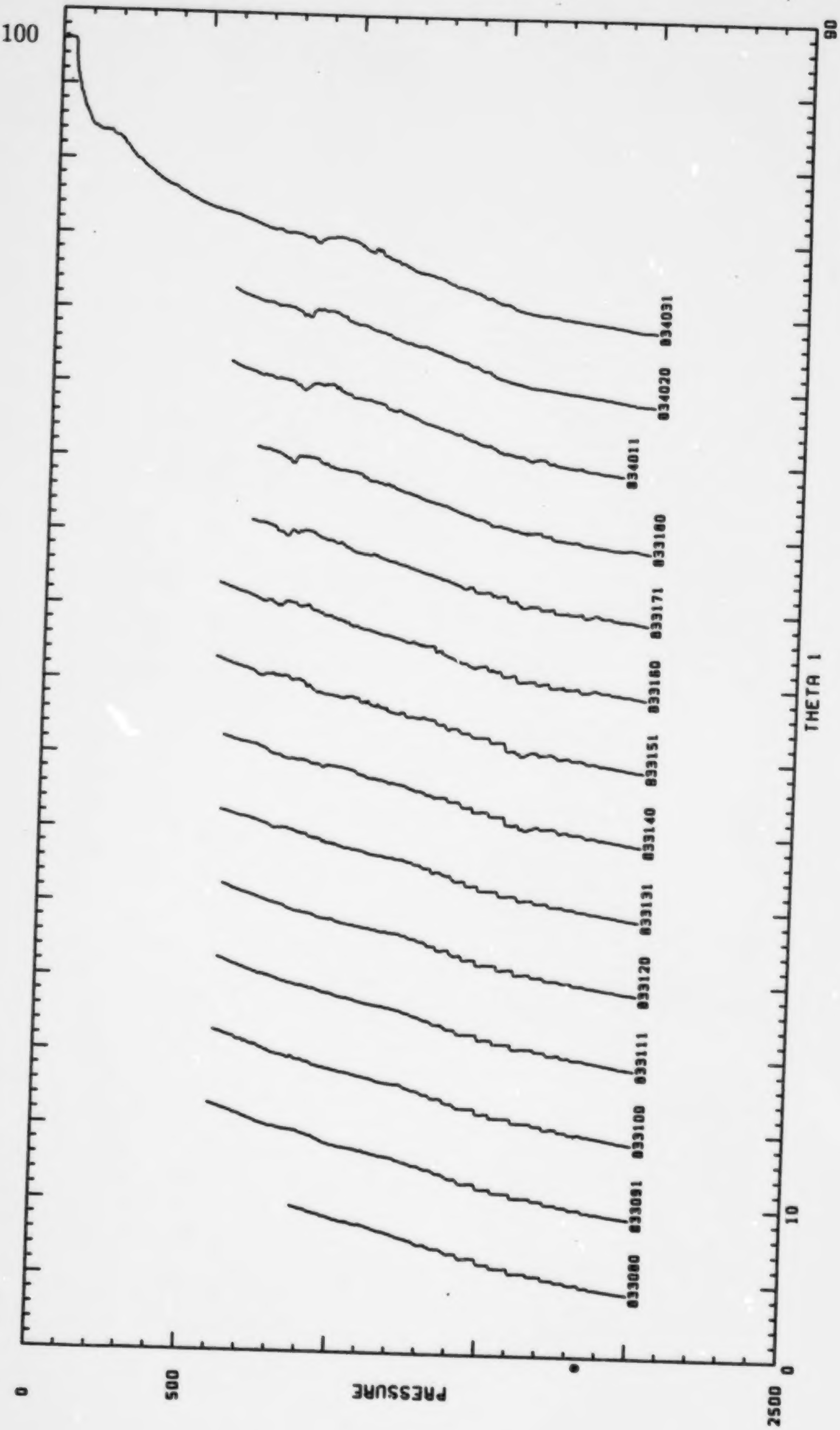
PRESSURE
0
500
2500
THETA 1
0
10
90
032230
032241
032250
032261
032270
032281
032290
033011
033020
033031
033040
033051
033060
033071

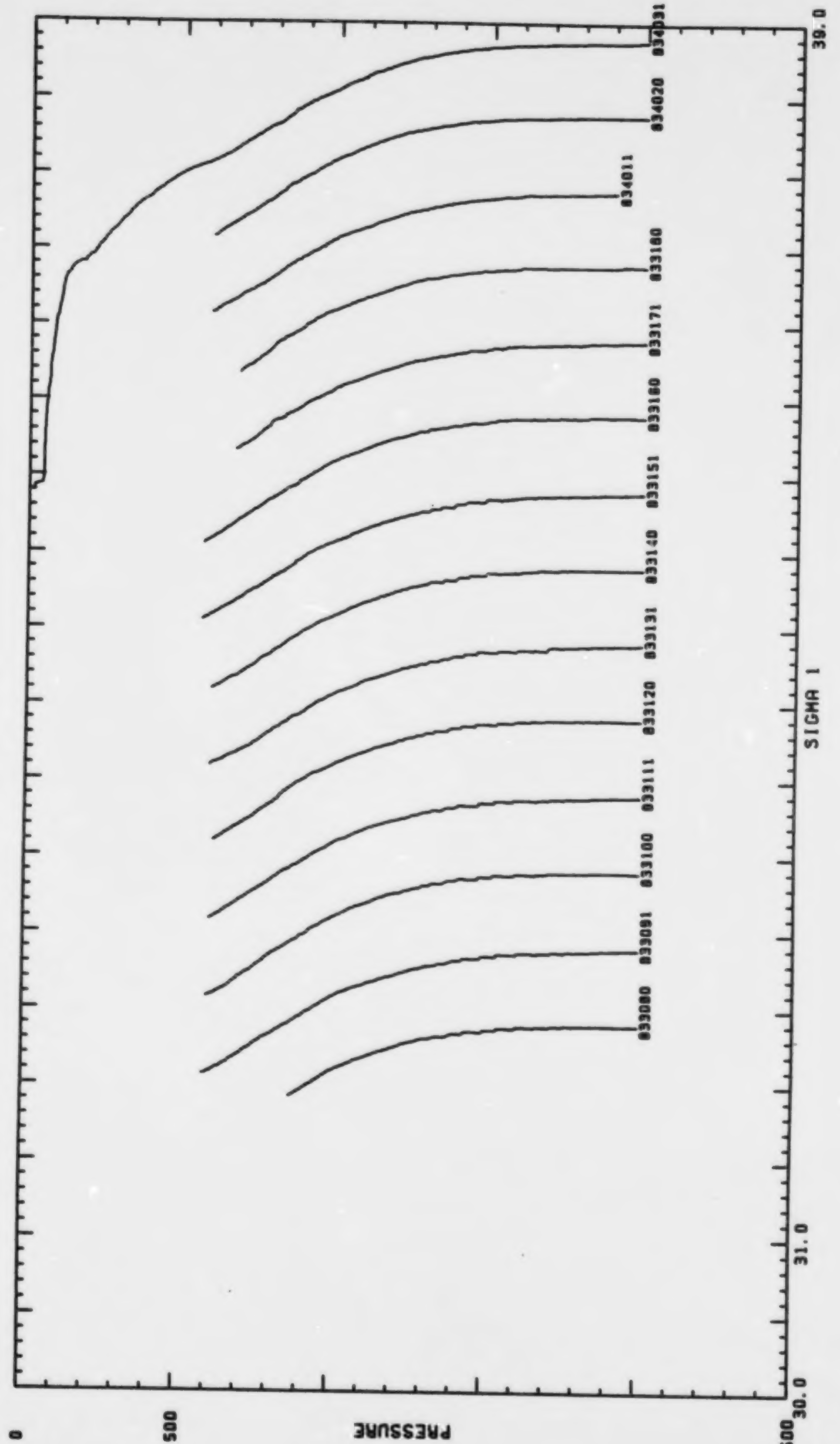

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
032230
032241
032250
032281
032270
032281
032290
033011
033020
033031
033040
033051
033060
033071

Survey I : October 1984

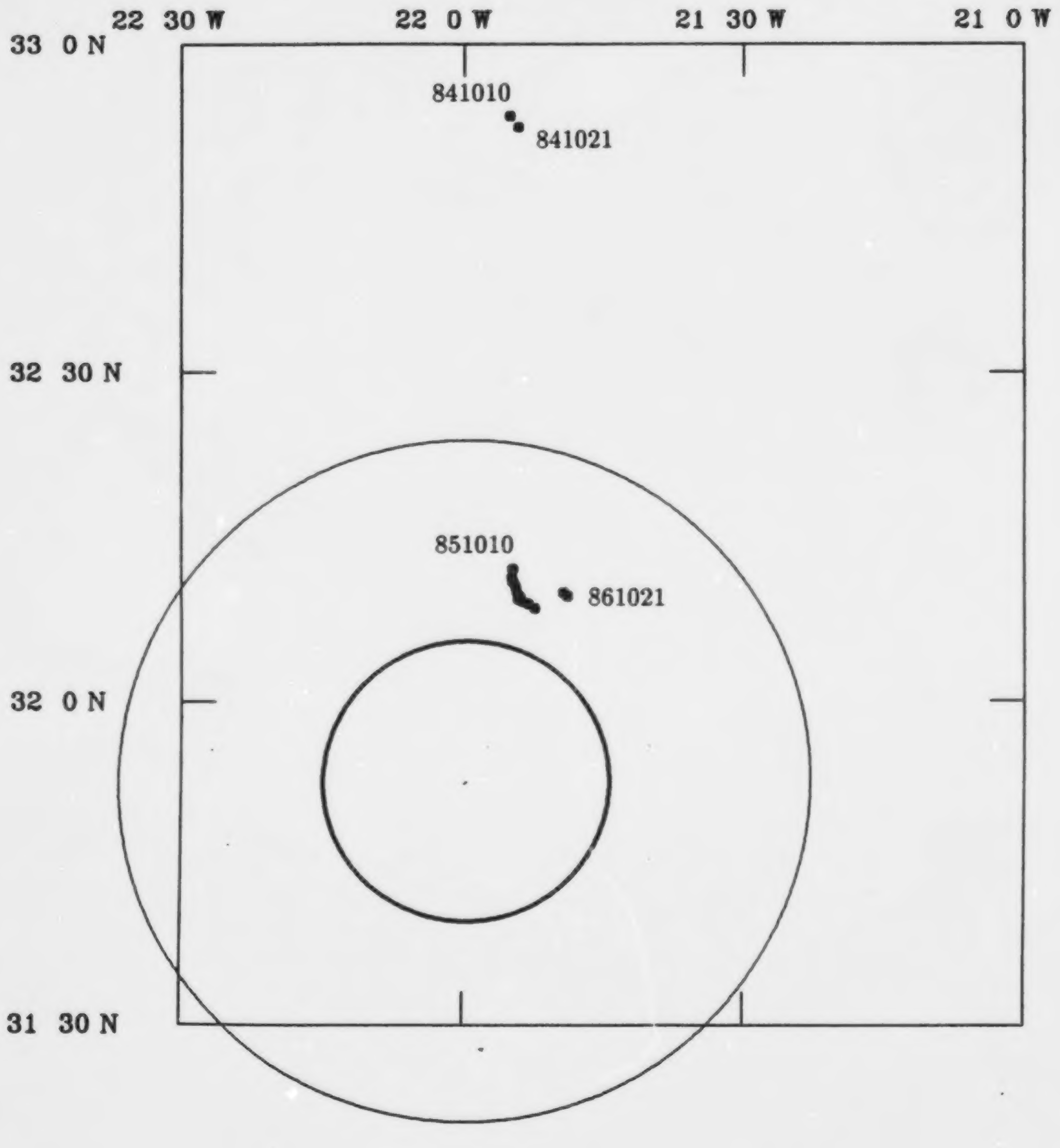


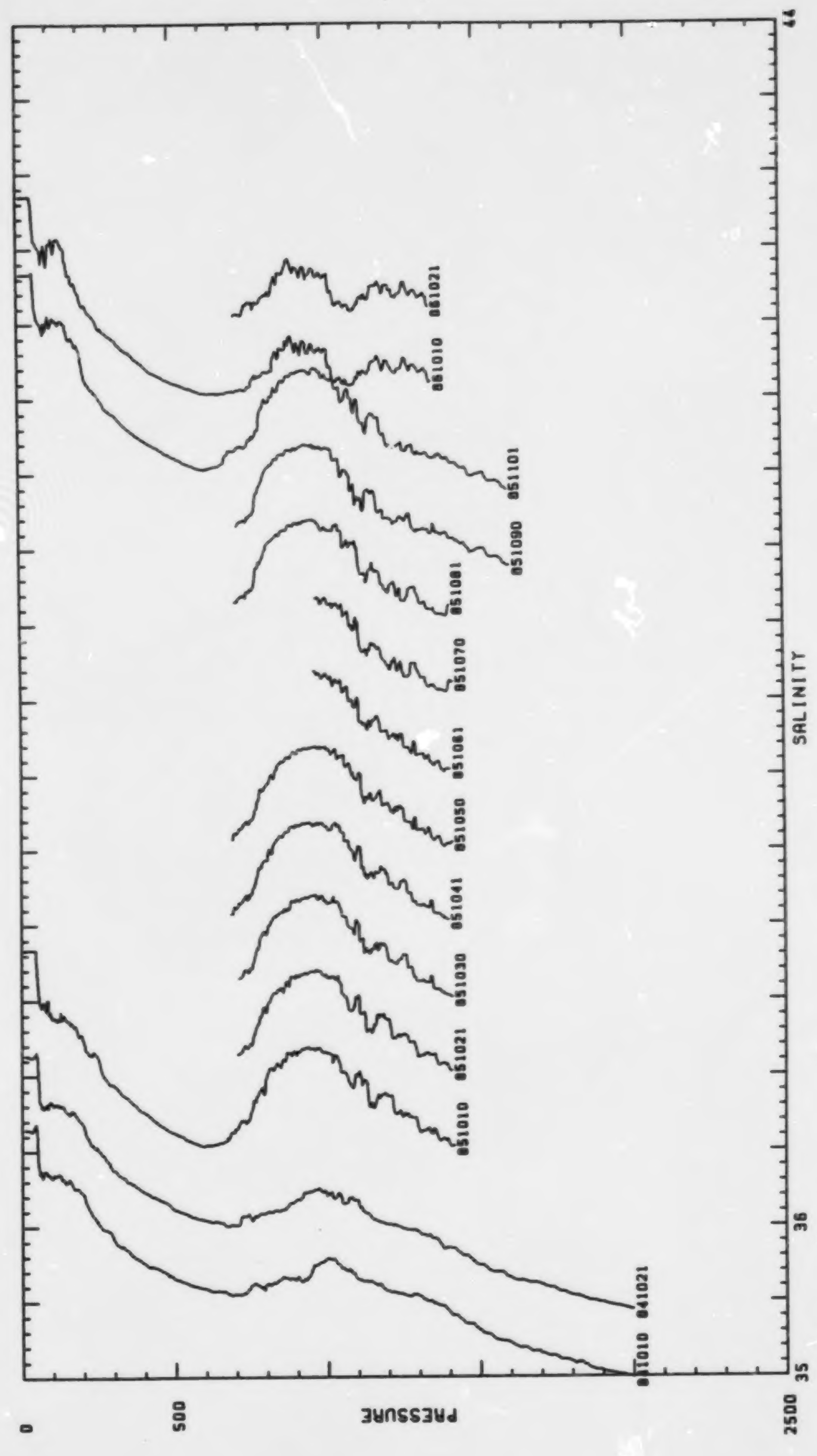

PRESSURE
0
500
2500
SALINITY
35
36
44
834031
834020
834011
833180
833171
833160
833151
833140
833131
833120
833111
833100
833091
833080

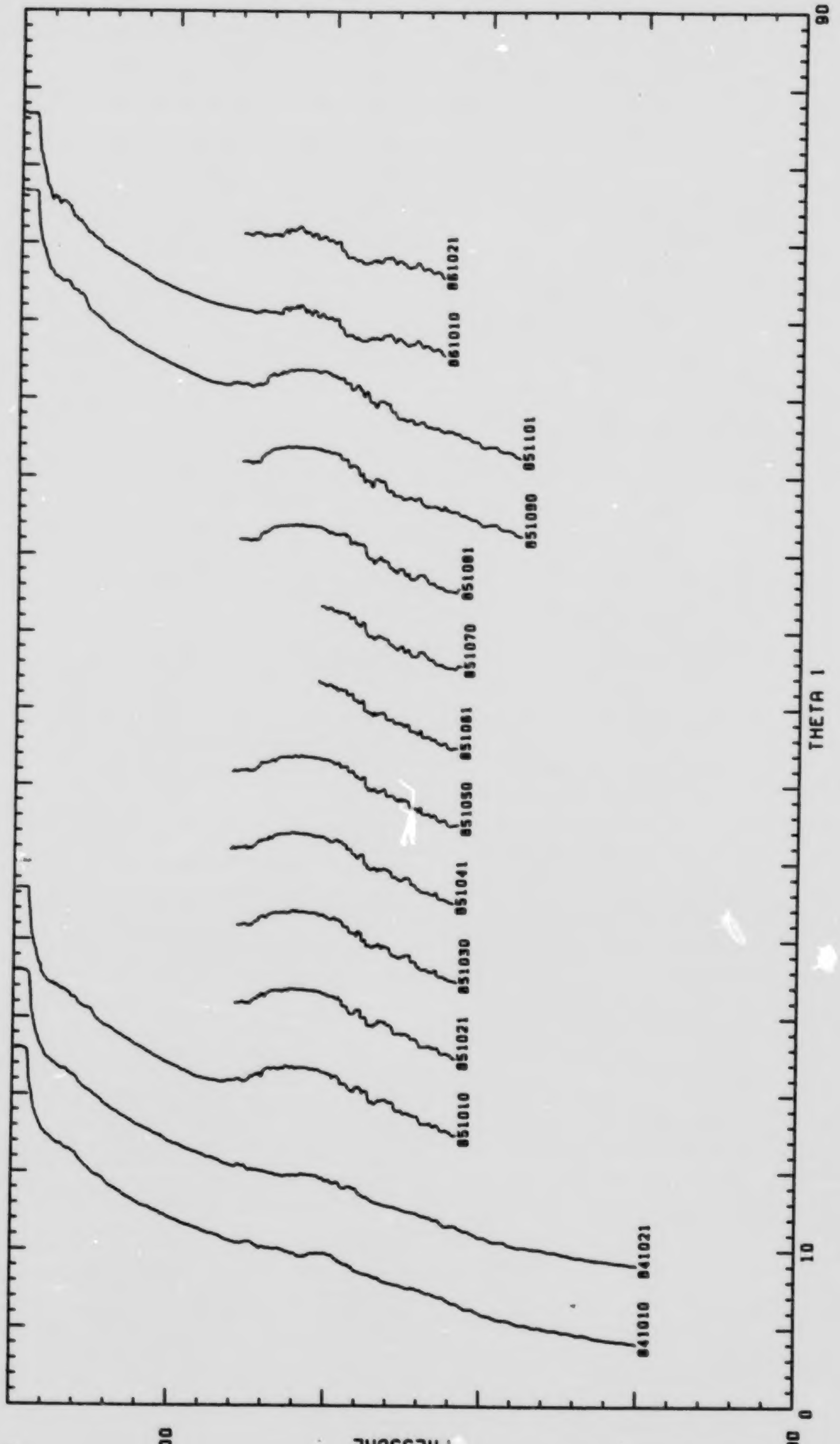

PRESSURE
0
500
2500
THETA 1
0
10
90
034031
034020
034011
033180
033171
033160
033151
033140
033131
033120
033111
033100
033081
033080

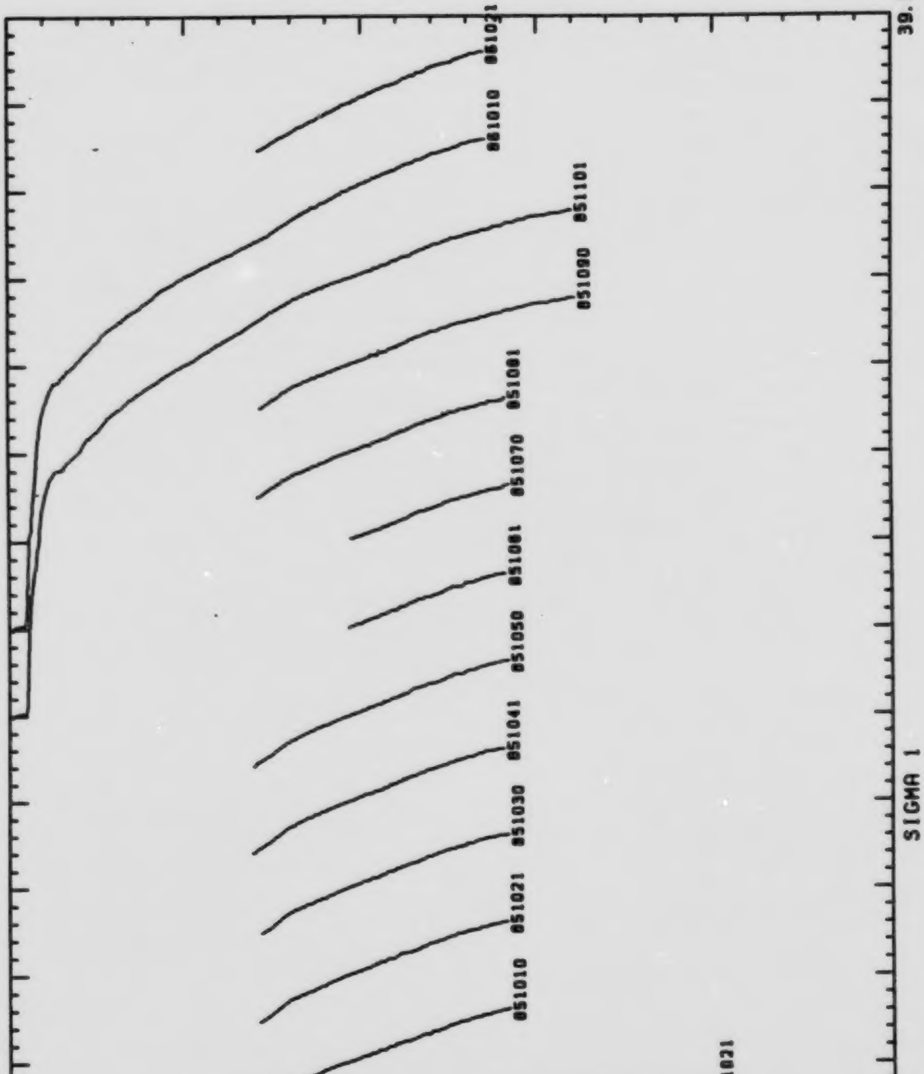

834031
834020
834011
833180
833171
833160
833151
833140
833131
833120
833111
833100
833091
833080
PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0

Survey I : October 1984

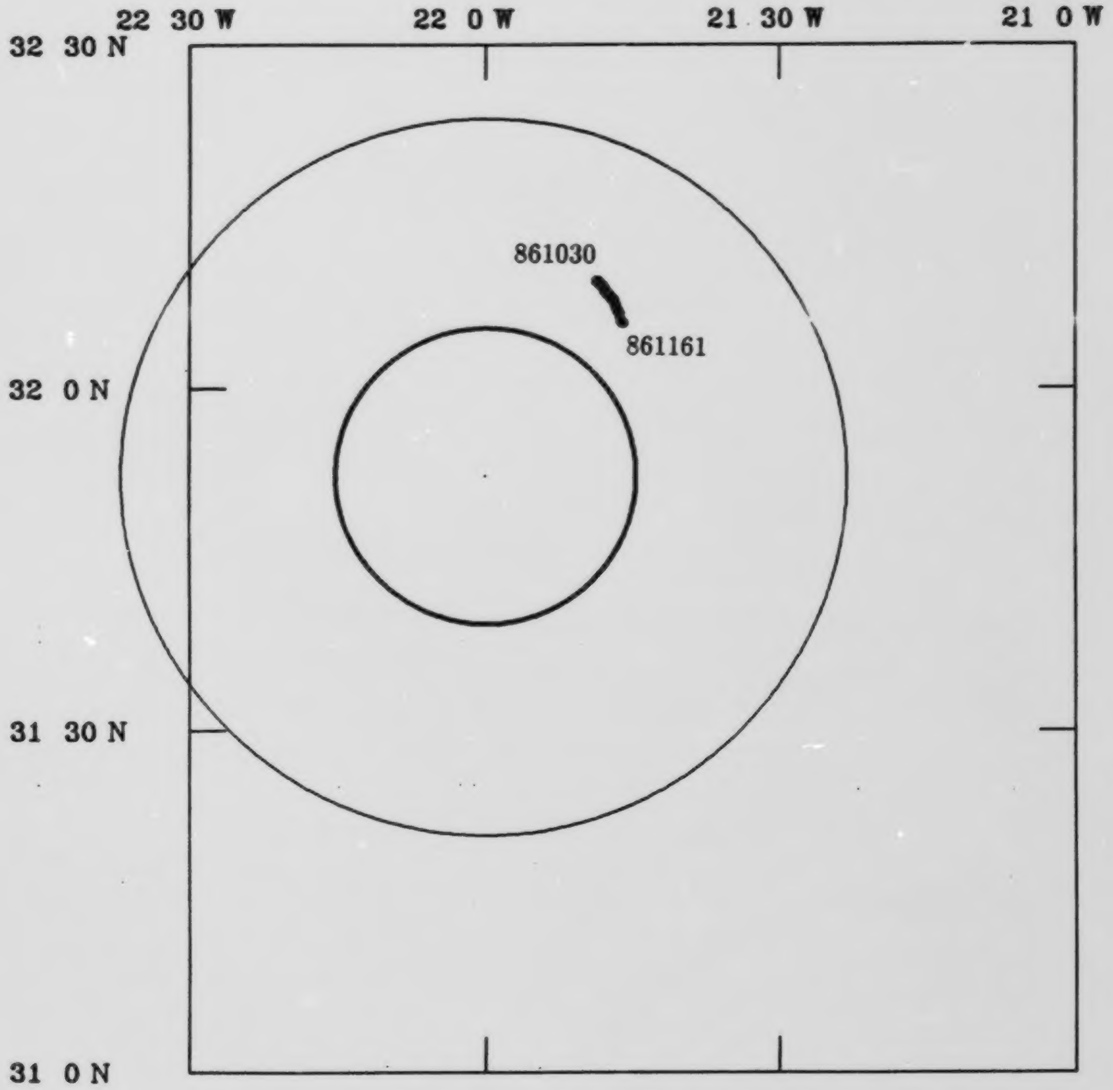


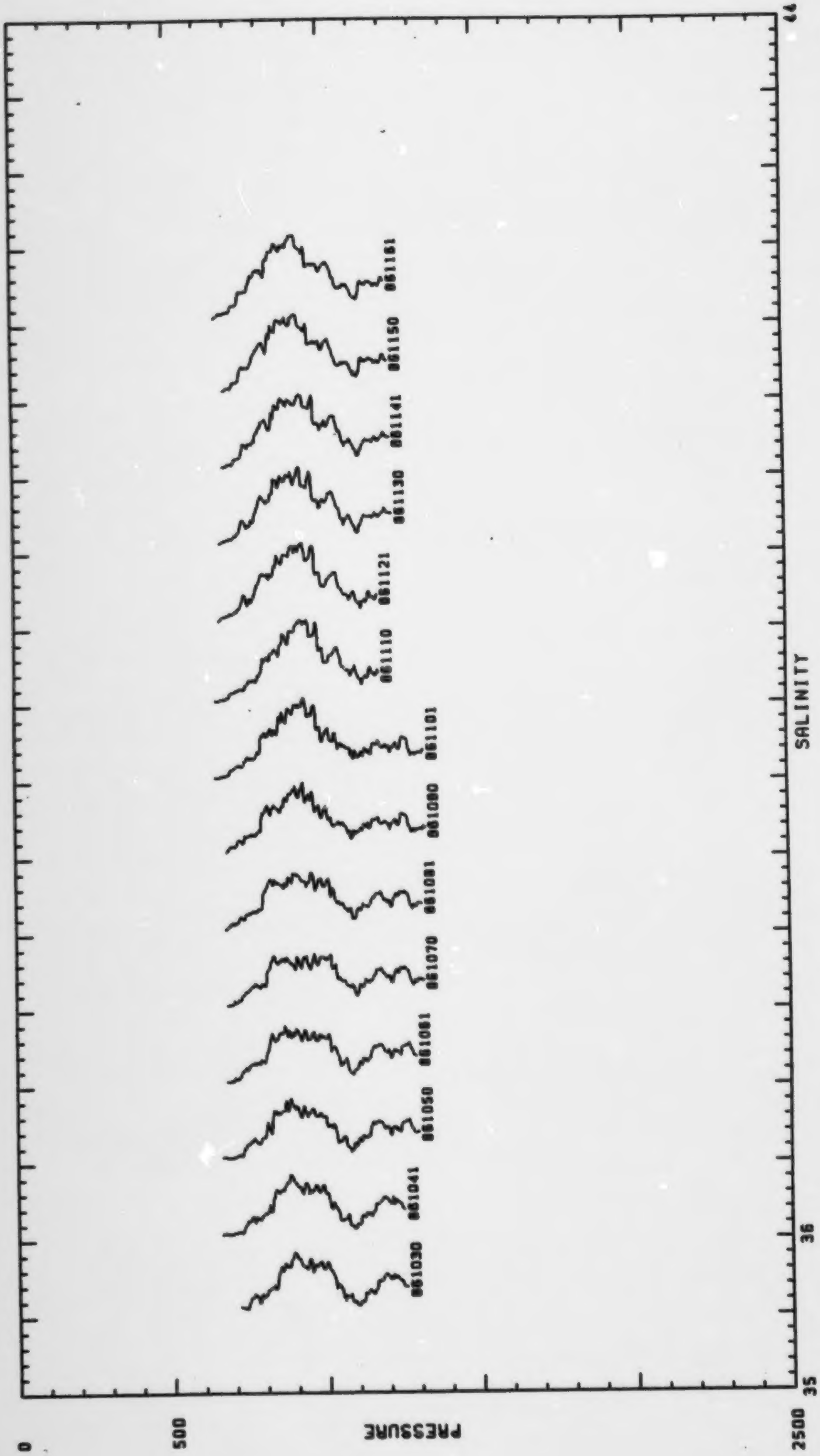

PRESSURE
0
500
2500
SALINITY
35
36
841010
841021
851010
851021
851030
851041
851050
851061
851070
851081
851090
851101
861010
861021

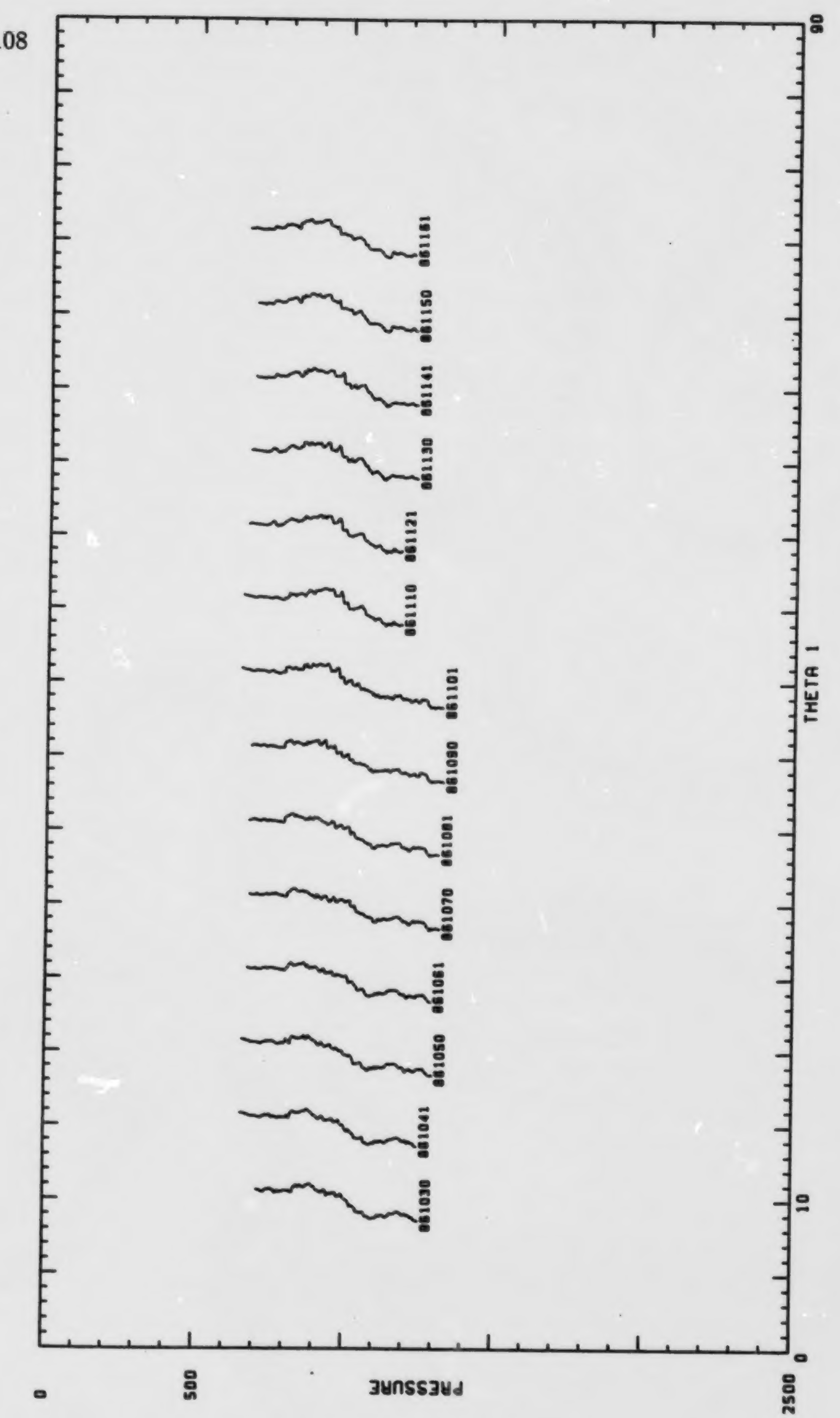

PRESSURE
0
500
2500
THETA 1
0
10
90
841010
841021
851010
851021
851030
851041
851050
851061
851070
851081
851090
851101
861010
861021

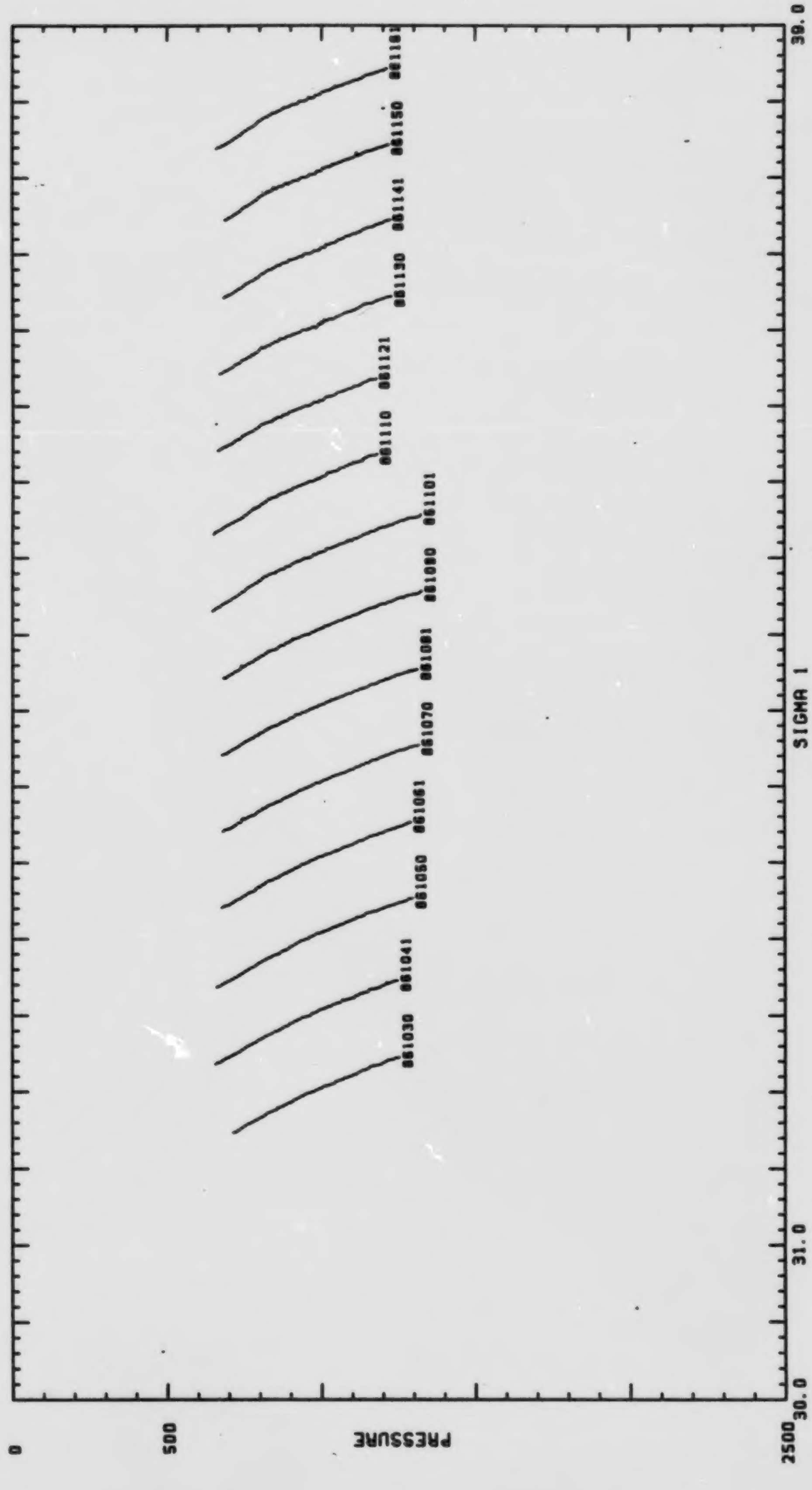

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
861021
861010
851101
851090
851081
851070
851061
851050
851041
851030
851021
851010
841021
841010

Survey I : October 1984



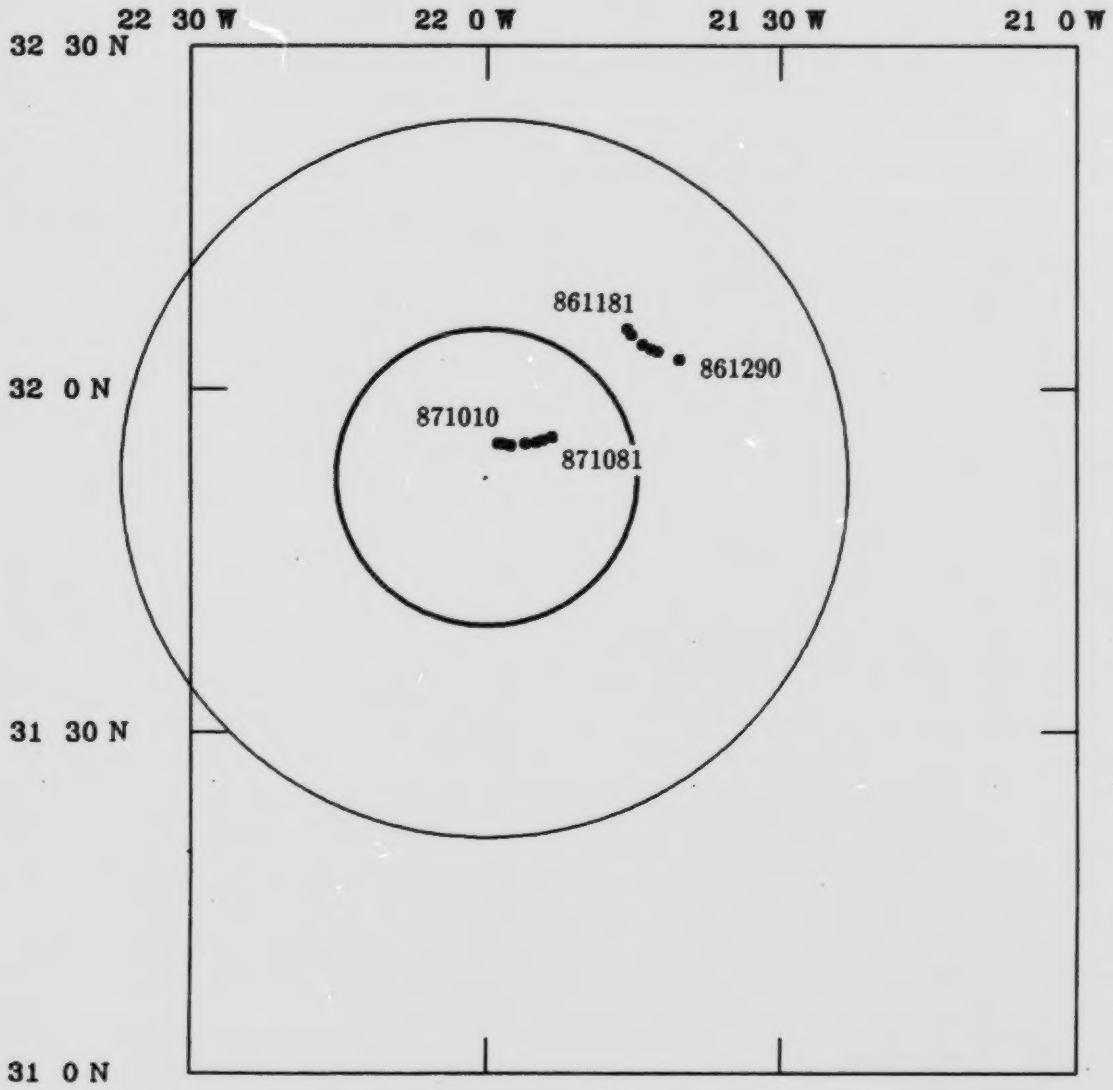

PRESSURE
0
500
2500
SALINITY
35
36
44
861030
861041
861050
861061
861070
861081
861090
861101
861110
861121
861130
861141
861150
861161

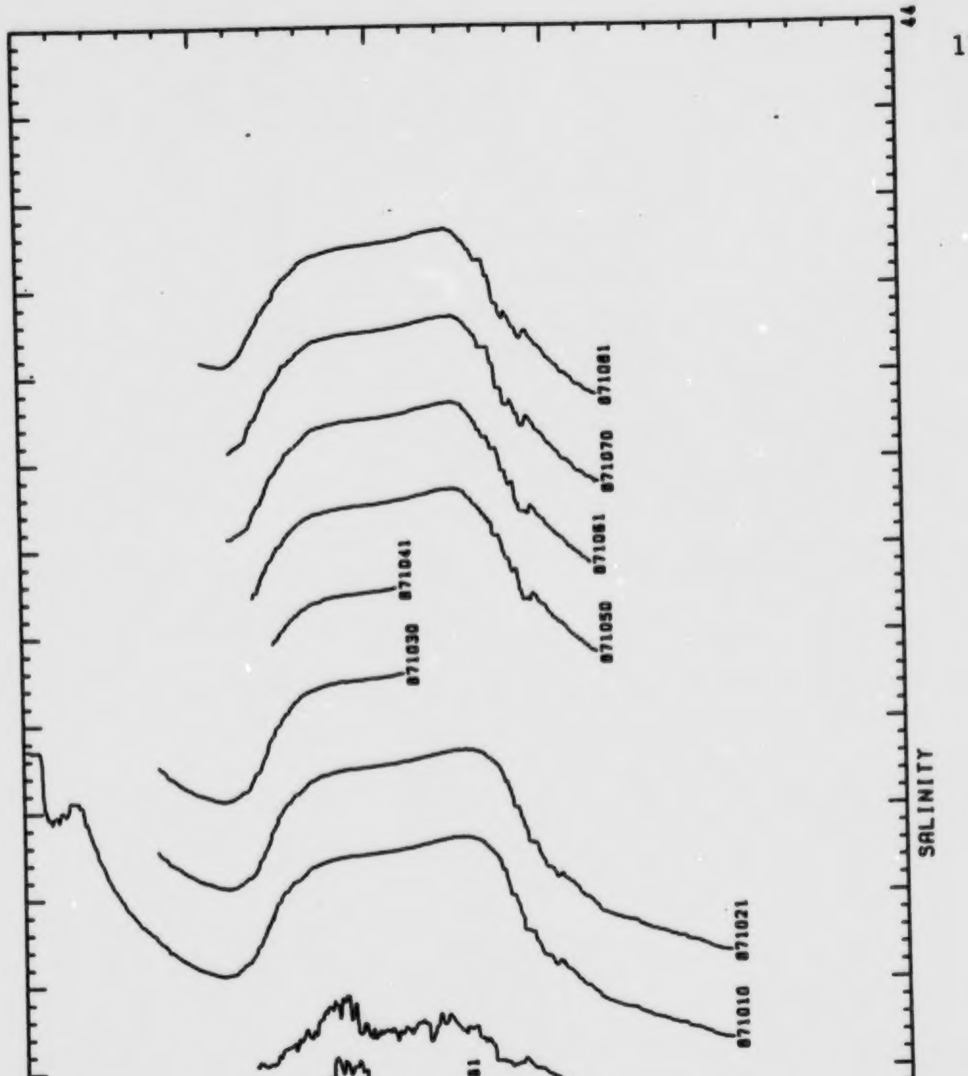

PRESSURE
0
500
2500
THETA 1
0
10
90
861030
861041
861050
861061
861070
861081
861090
861101
861110
861121
861130
861141
861150
861161

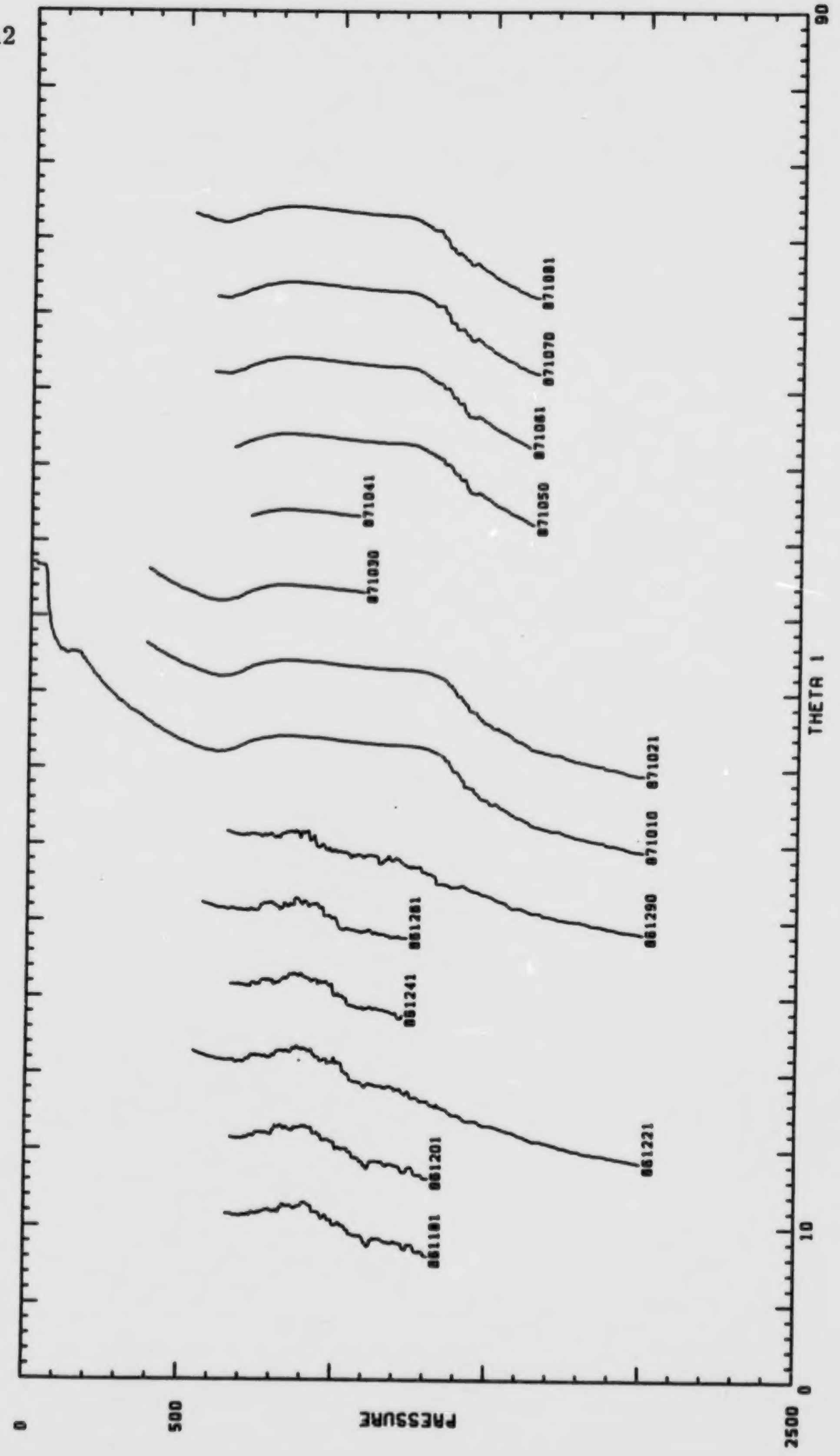


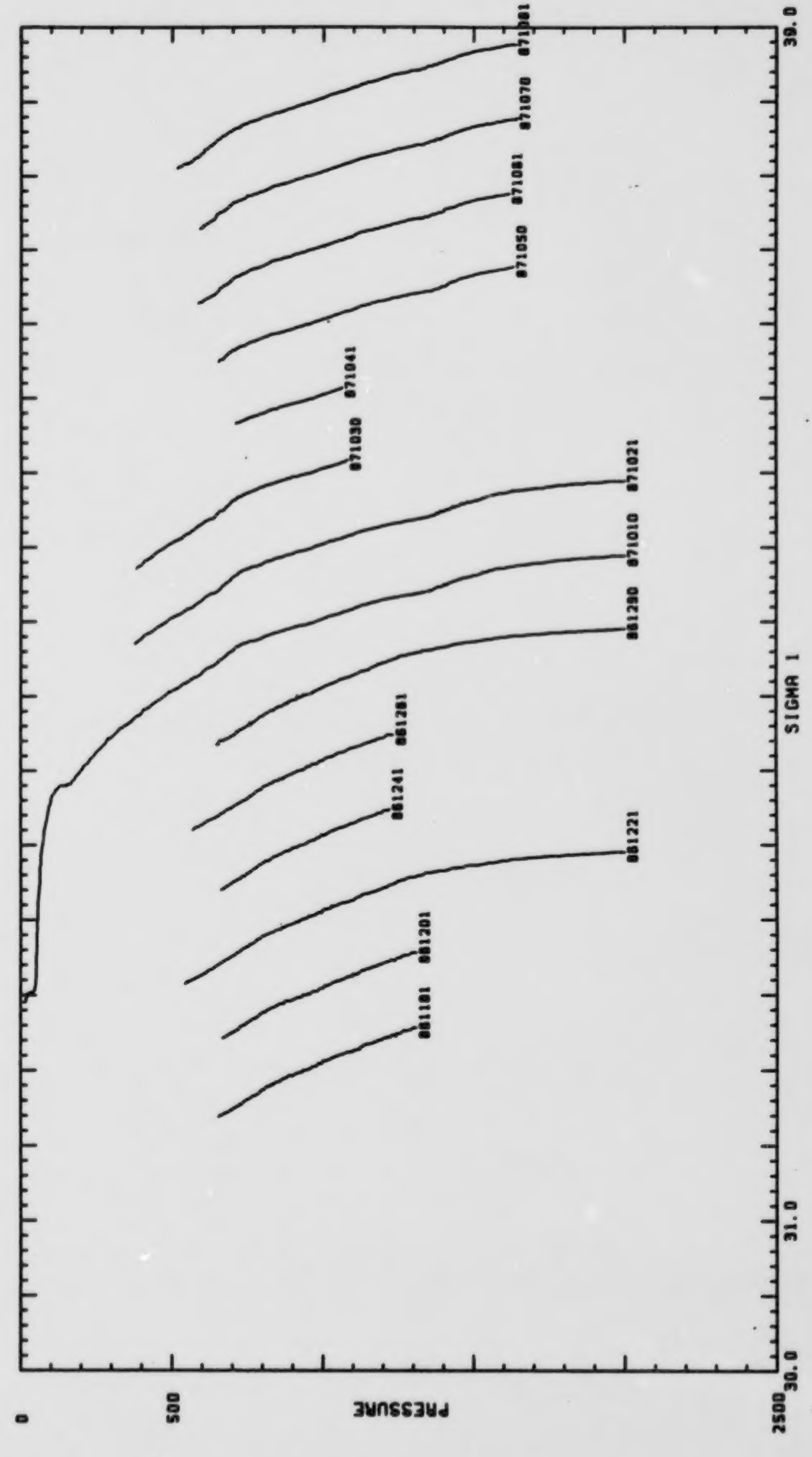
PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
861030
861041
861050
861061
861070
861081
861090
861101
861110
861121
861130
861141
861150
861161

Survey I : October 1984

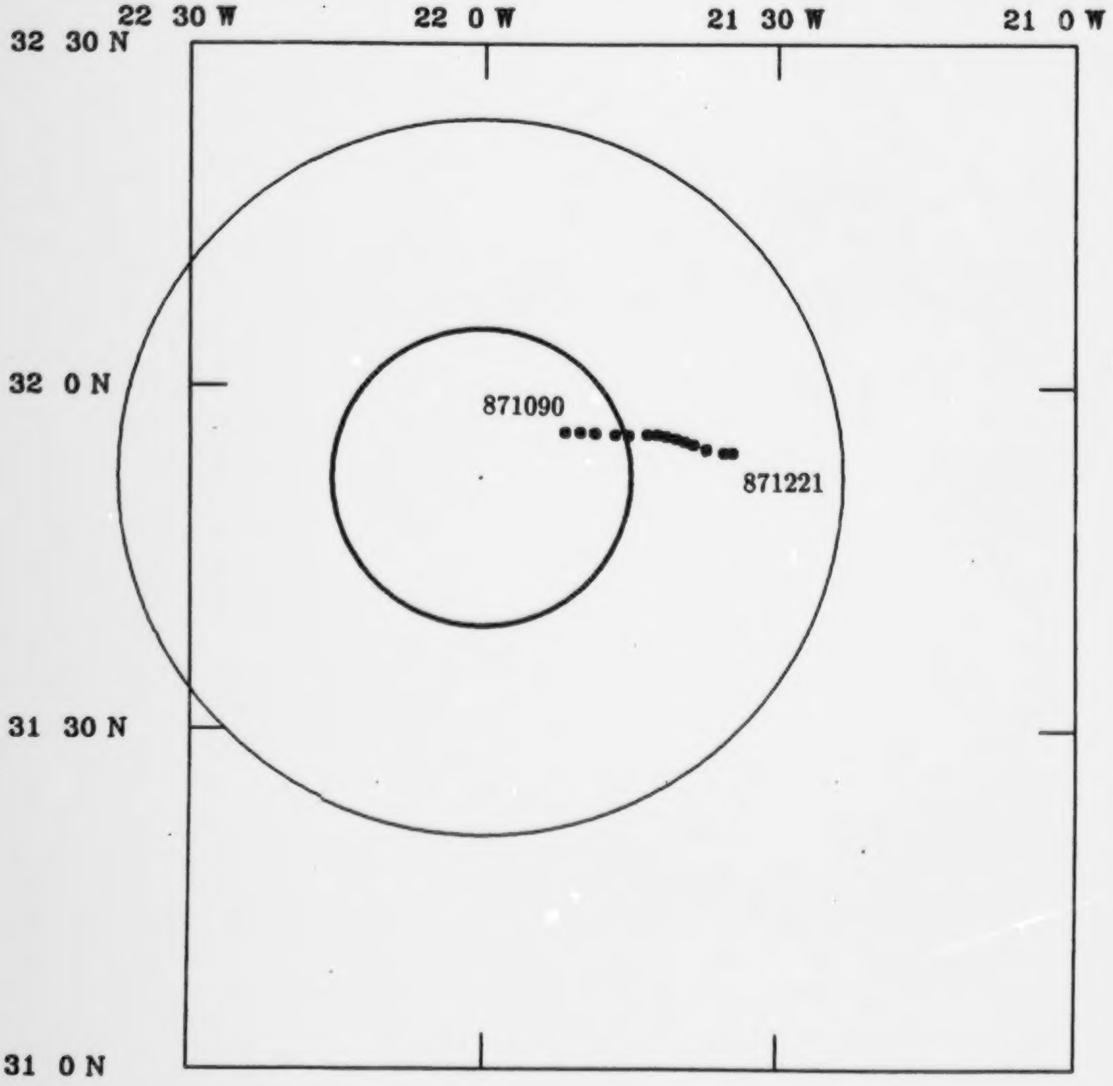


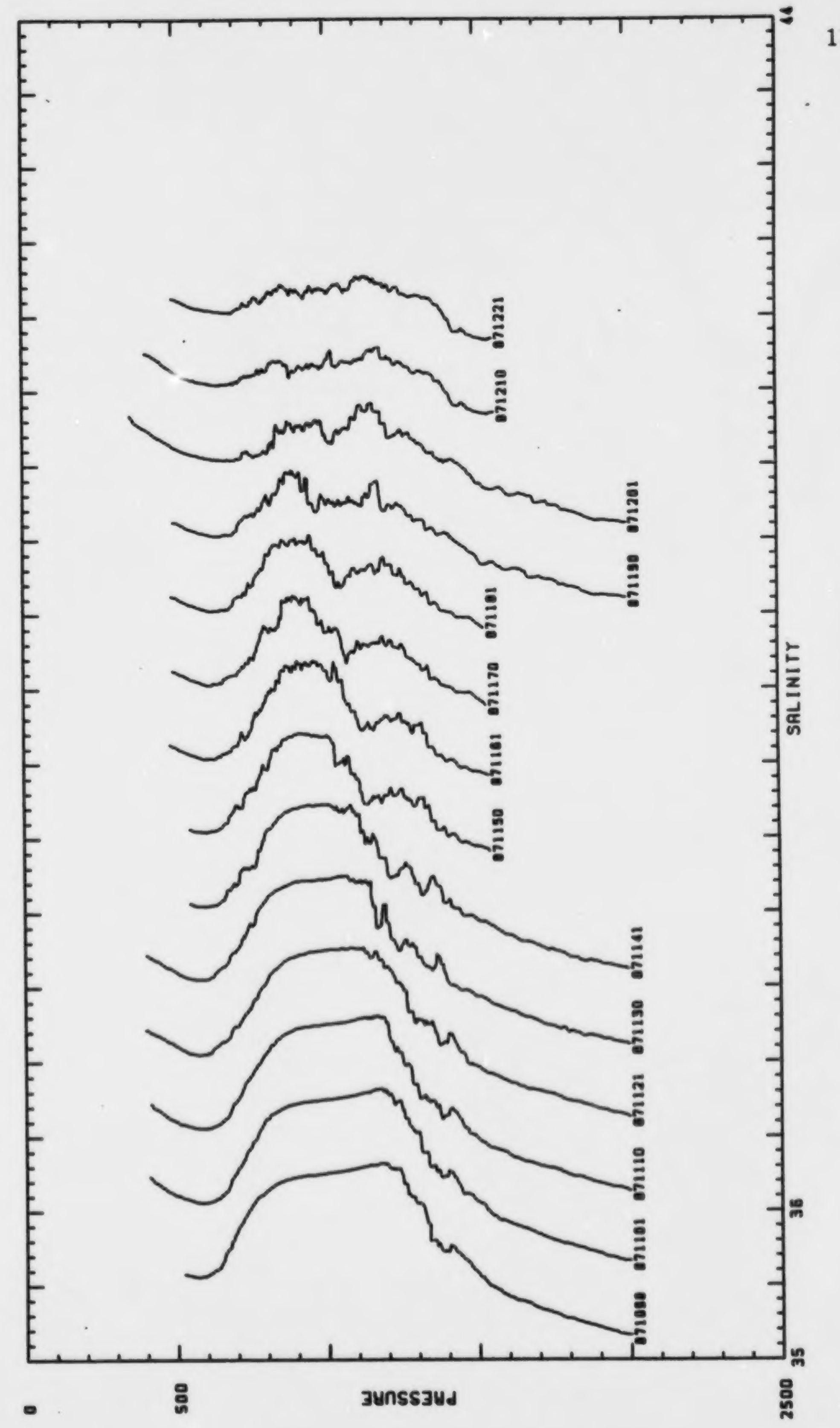

PRESSURE
0
500
2500
SALINITY
35
36
44
071081
071070
071061
071050
071041
071030
071021
071010
061290
061281
061241
061221
061201
061181

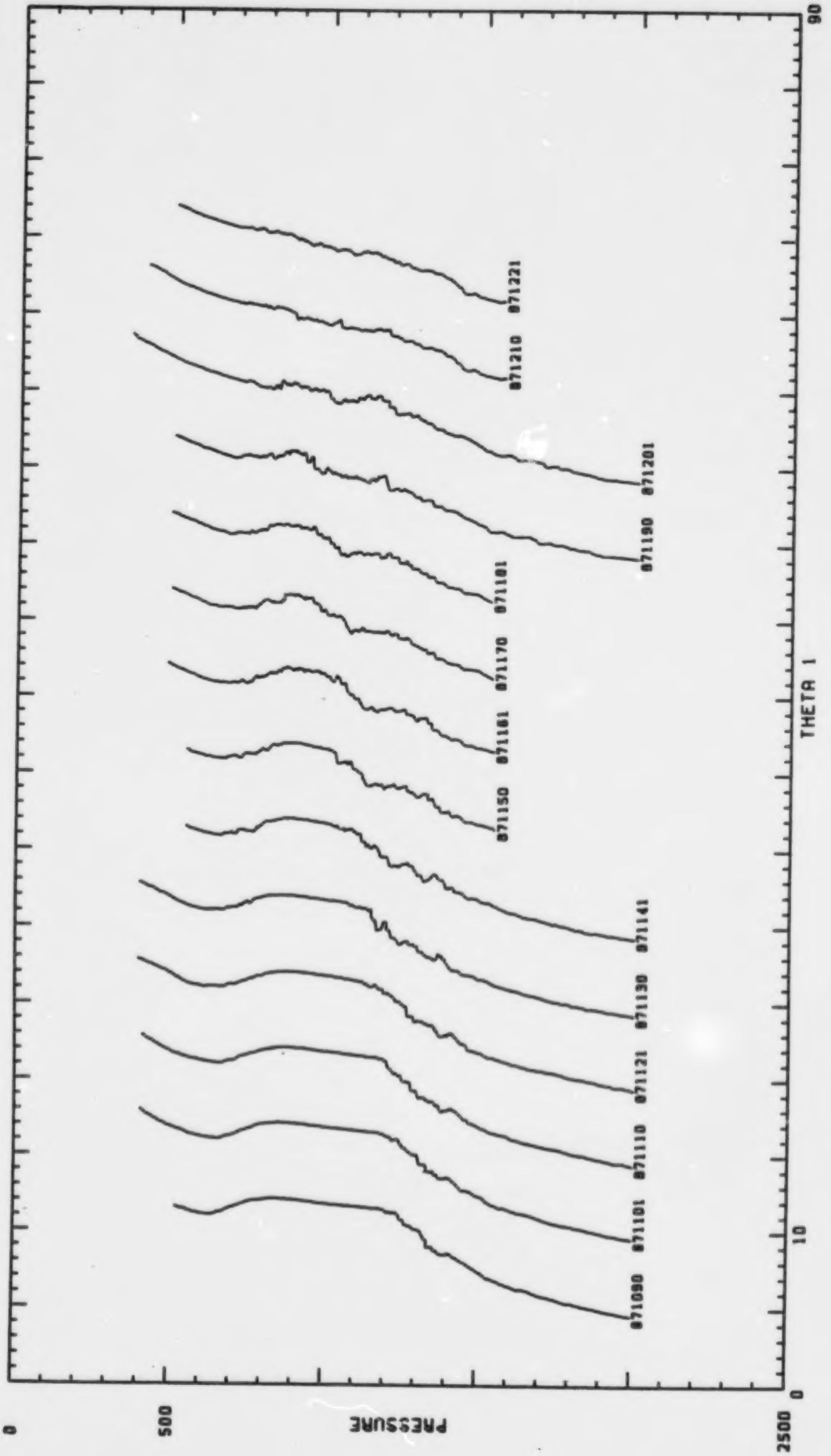

PRESSURE
THETA 1
0
500
2500
0
10
90
871081
871070
871061
871050
871041
871030
871021
871010
861290
861261
861241
861221
861201
861181


PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
861181
861201
861221
861241
861281
861290
871010
871021
871030
871041
871050
871081
871070
871081

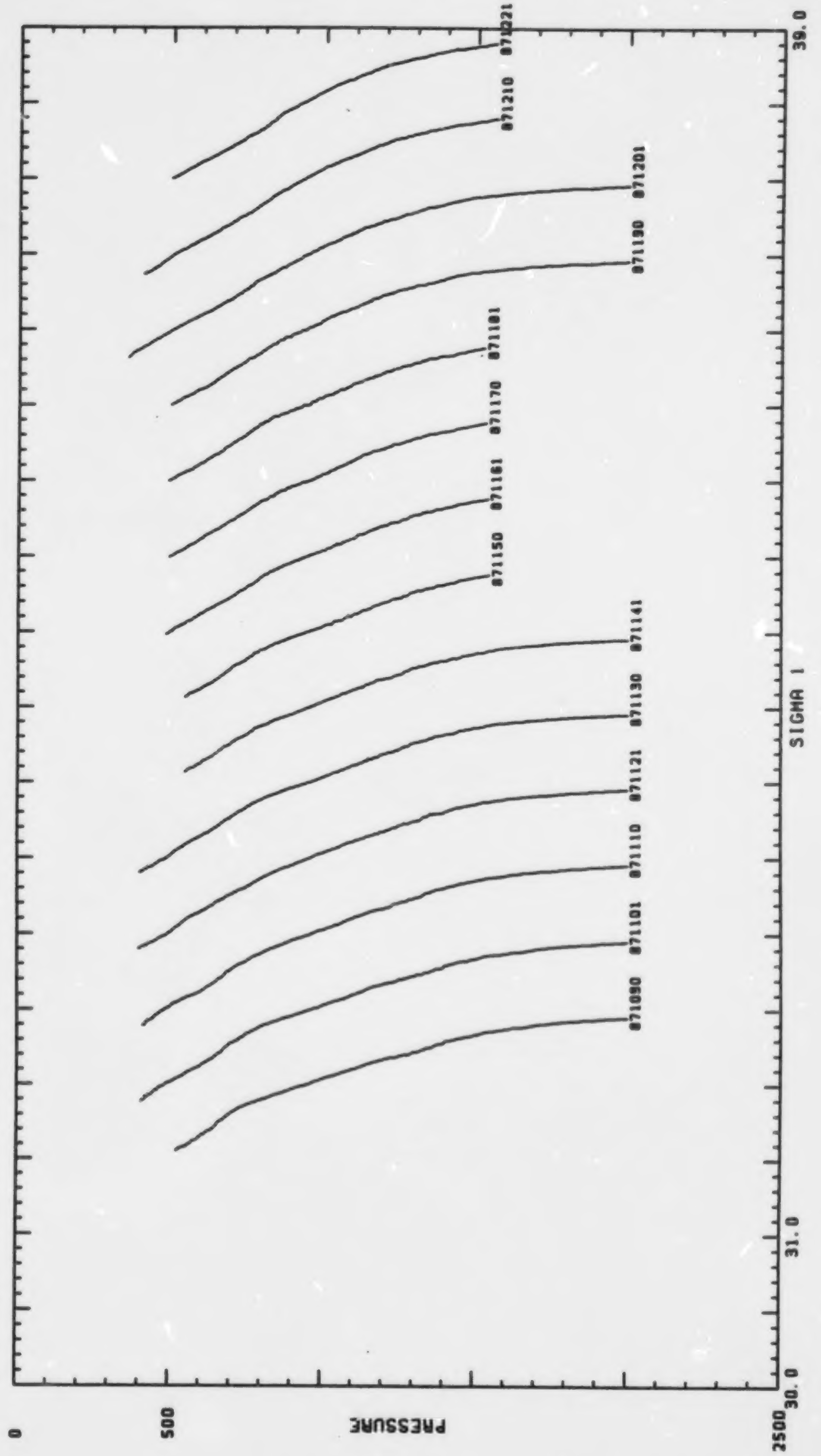
Survey I : October 1984




PRESSURE
0
500
2500
SALINITY
35
36
44

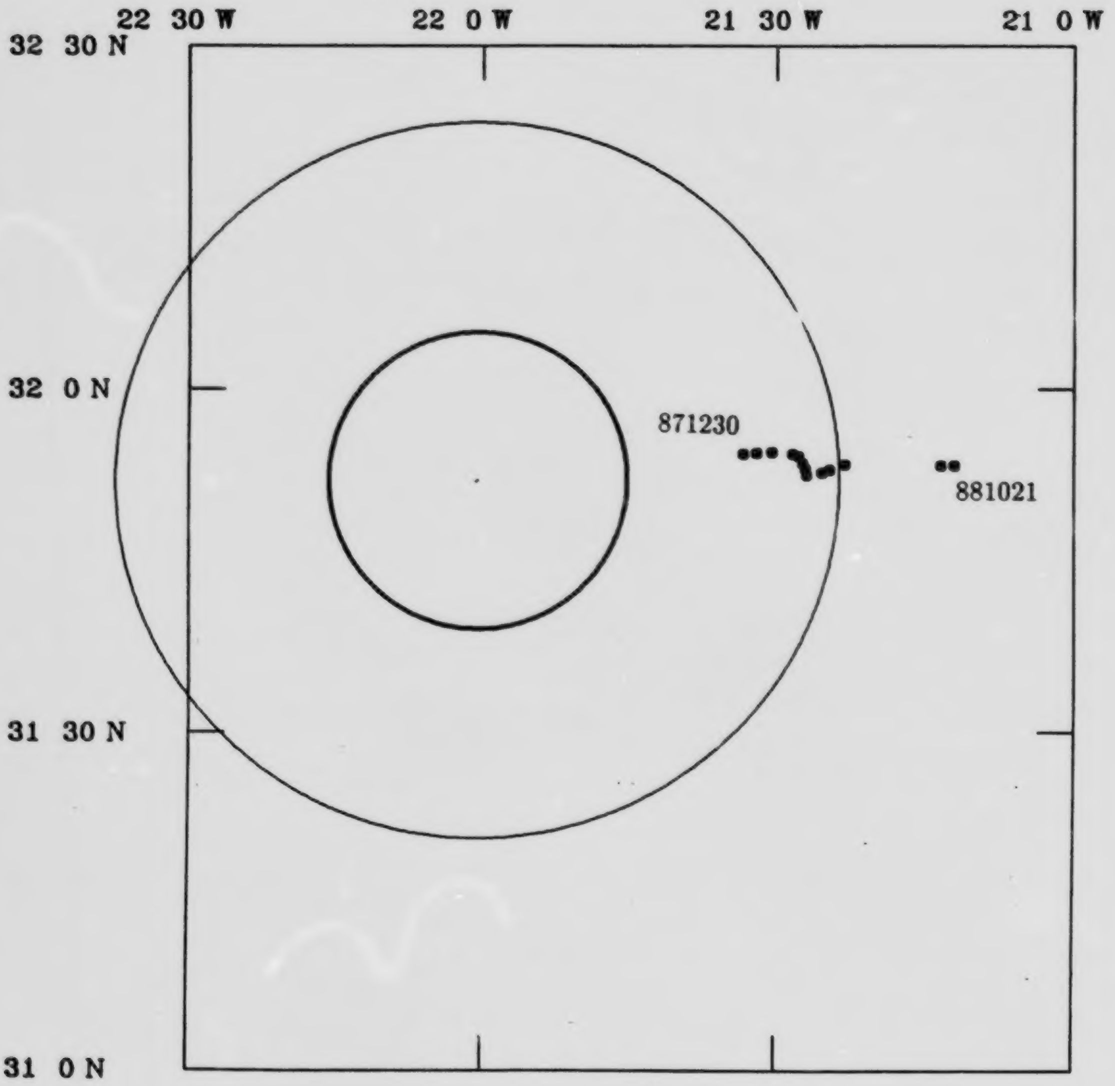


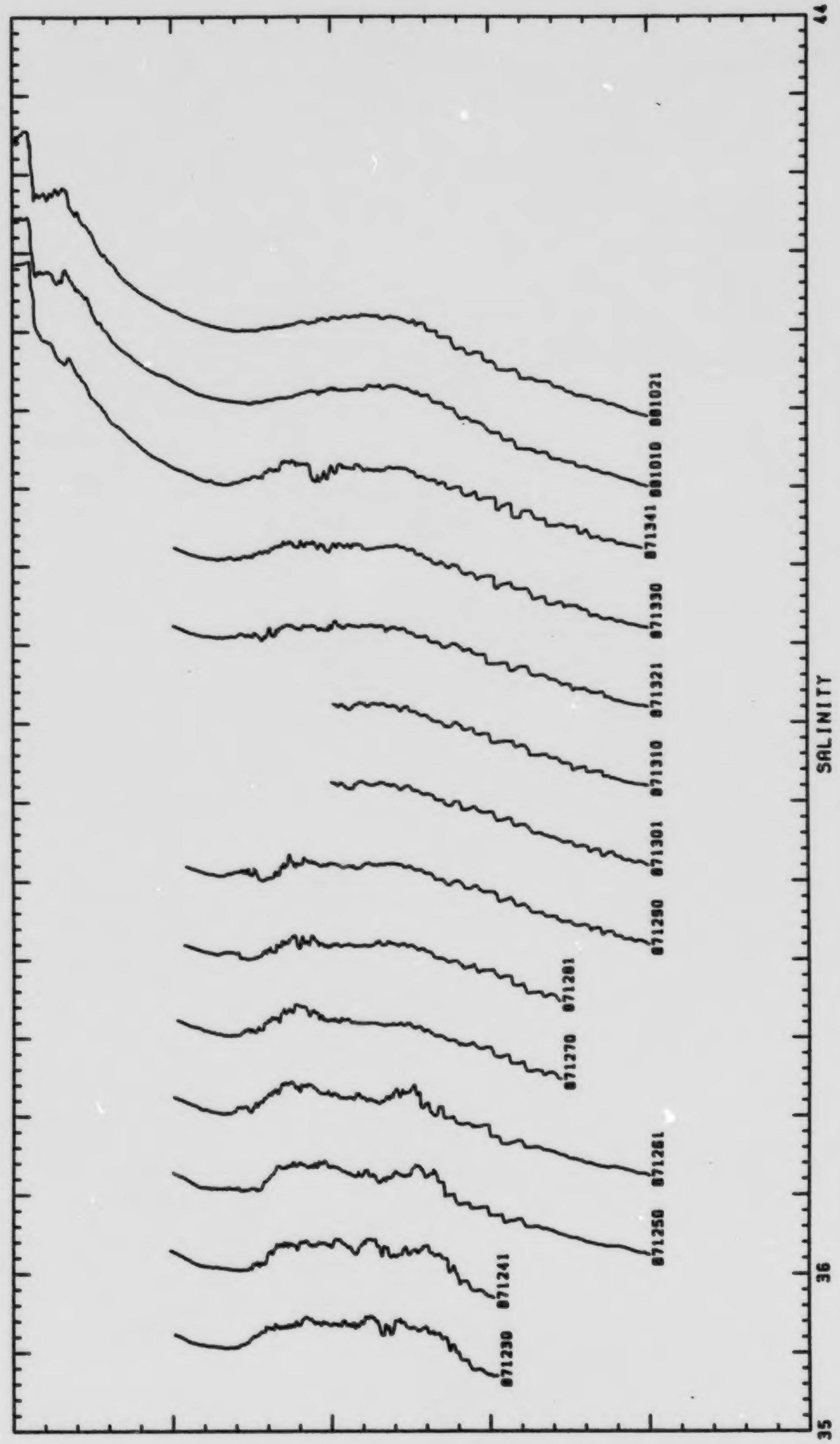
PRESSURE
0
500
2500
THETA 1
0
10
90



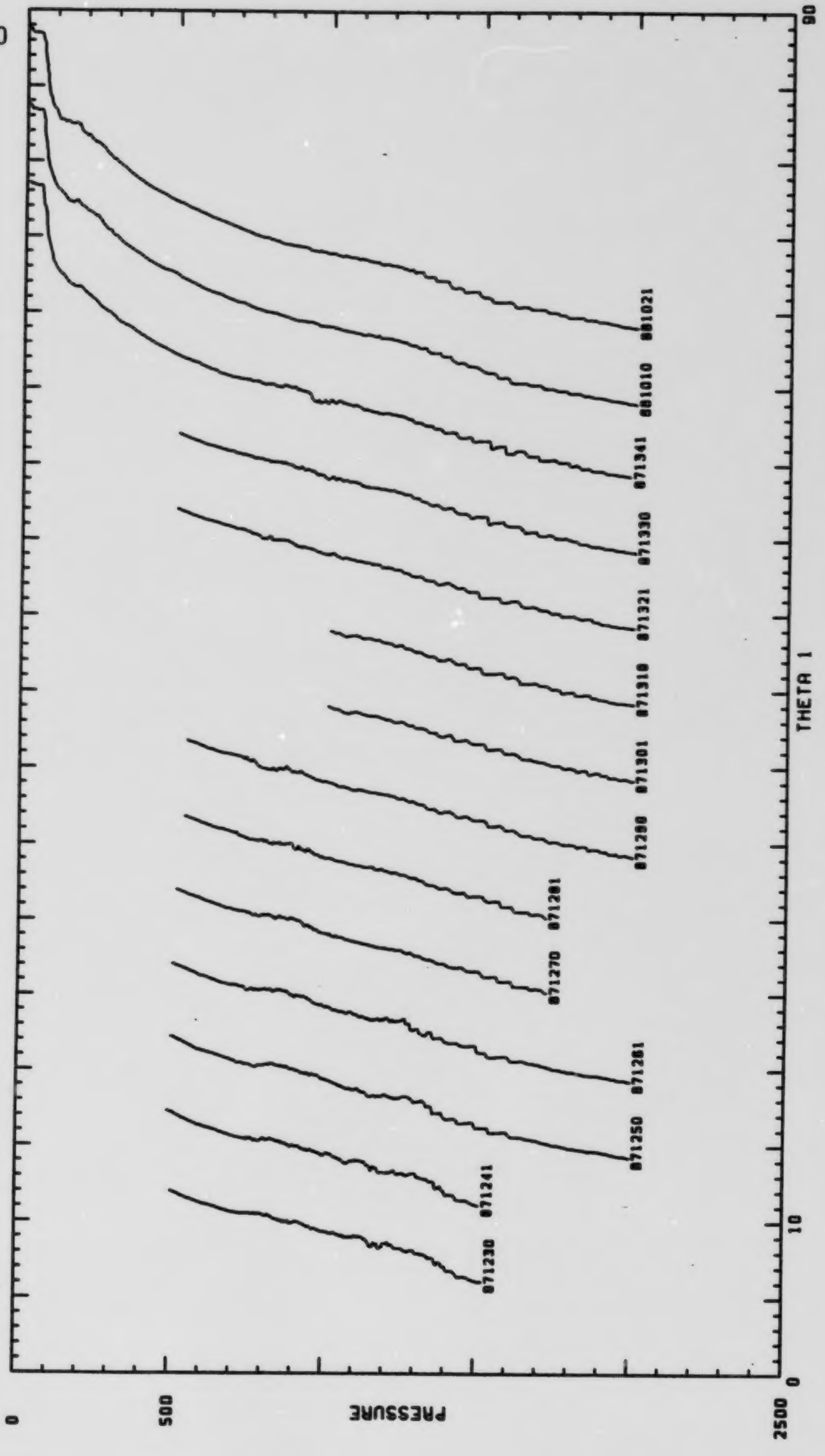
PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
871090
871101
871110
871121
871130
871141
871150
871161
871170
871181
871190
871201
871210
871221

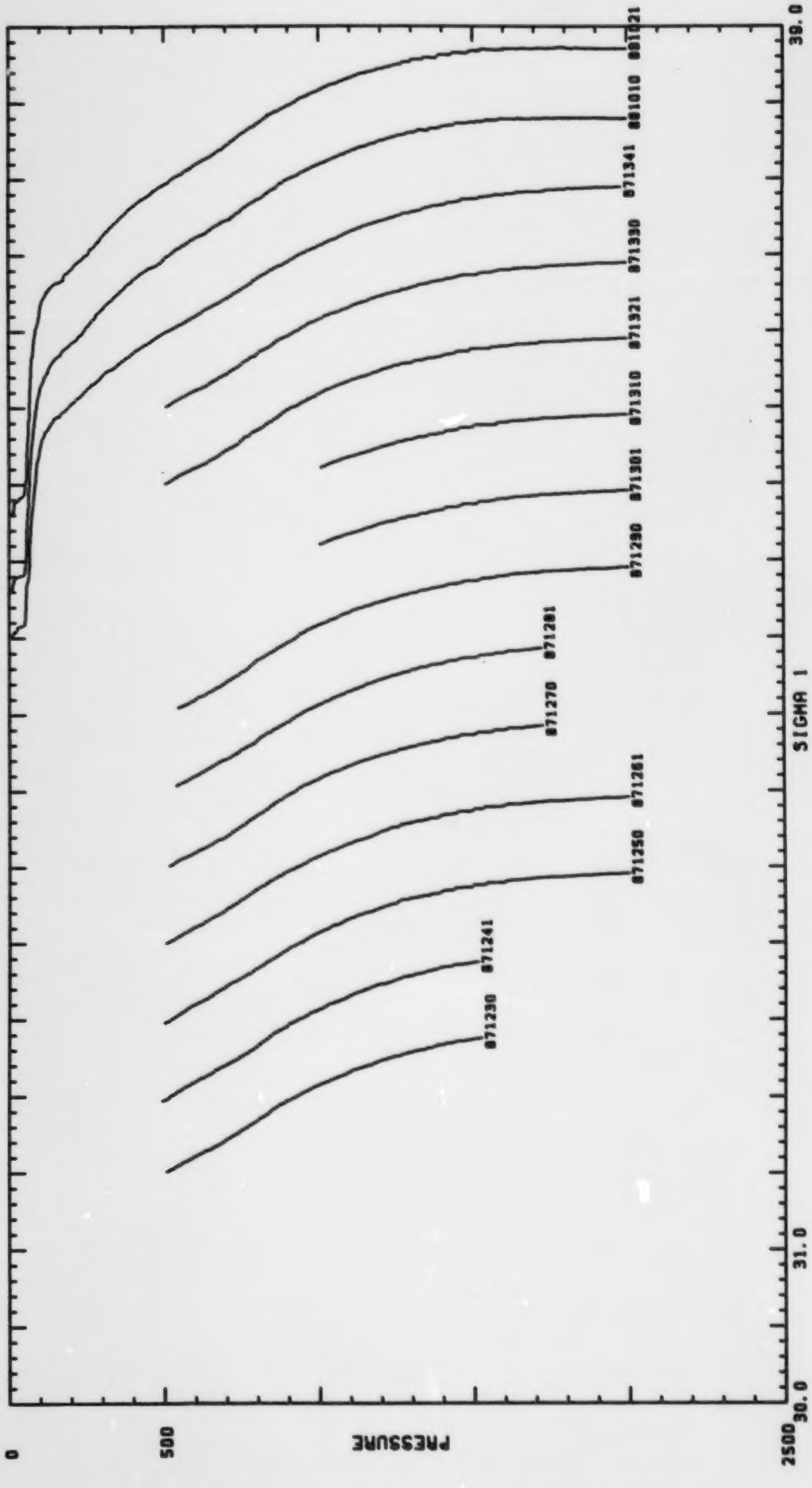
Survey I : October 1984

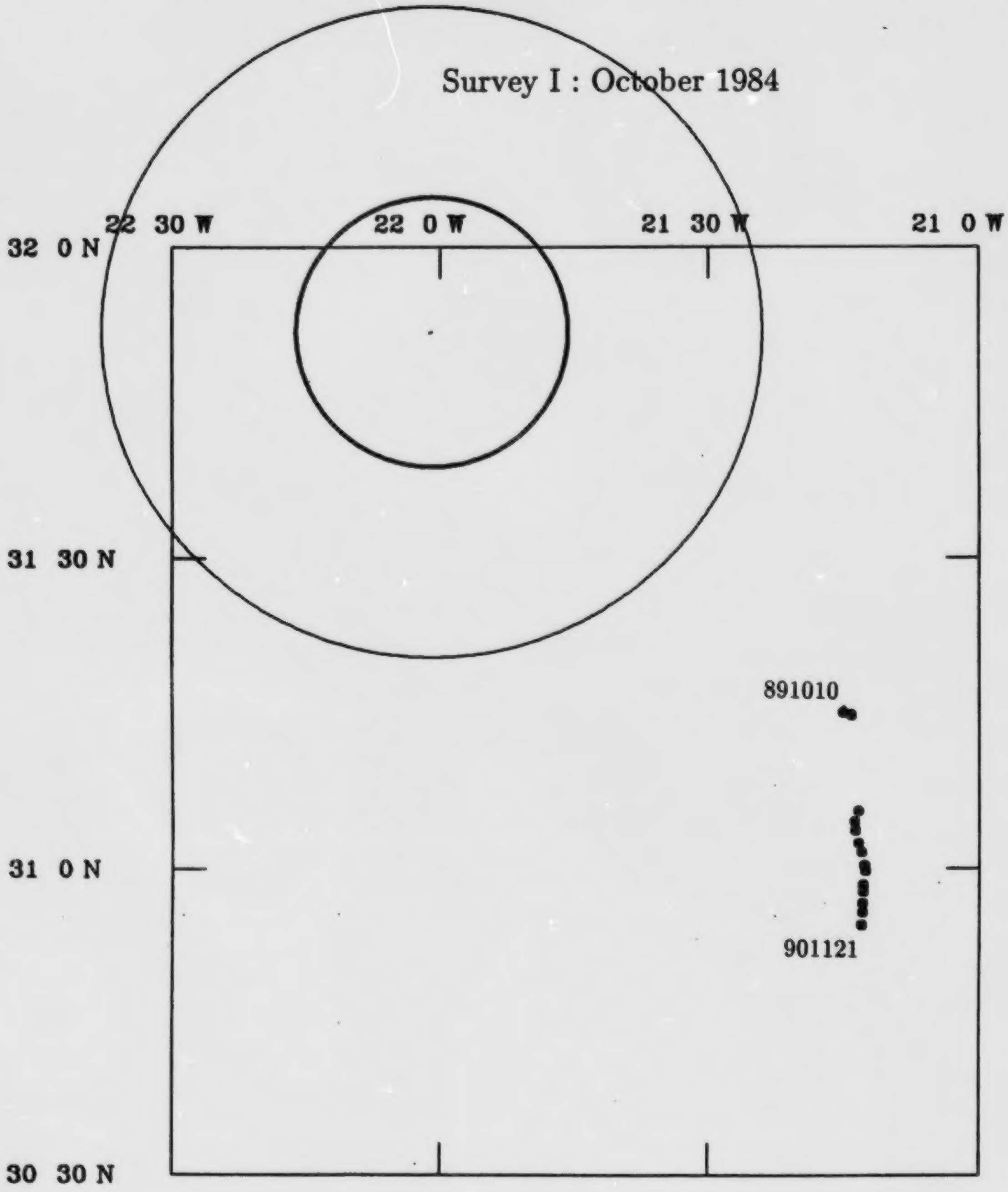


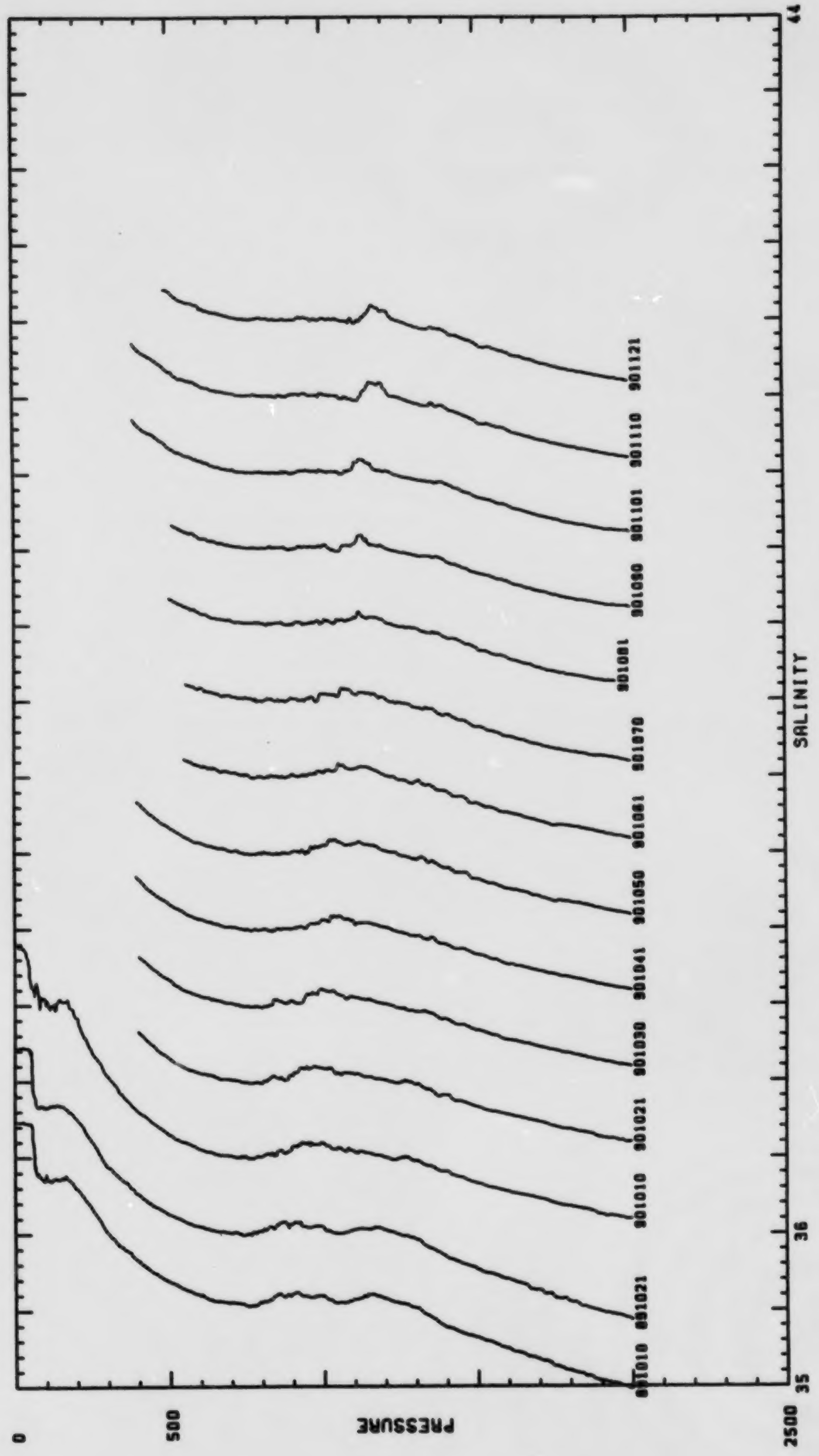

0
500
PRESSURE
2500
35
36
44
SALINITY
881021
881010
871341
871330
871321
871310
871301
871290
871281
871270
871261
871250
871241
871230

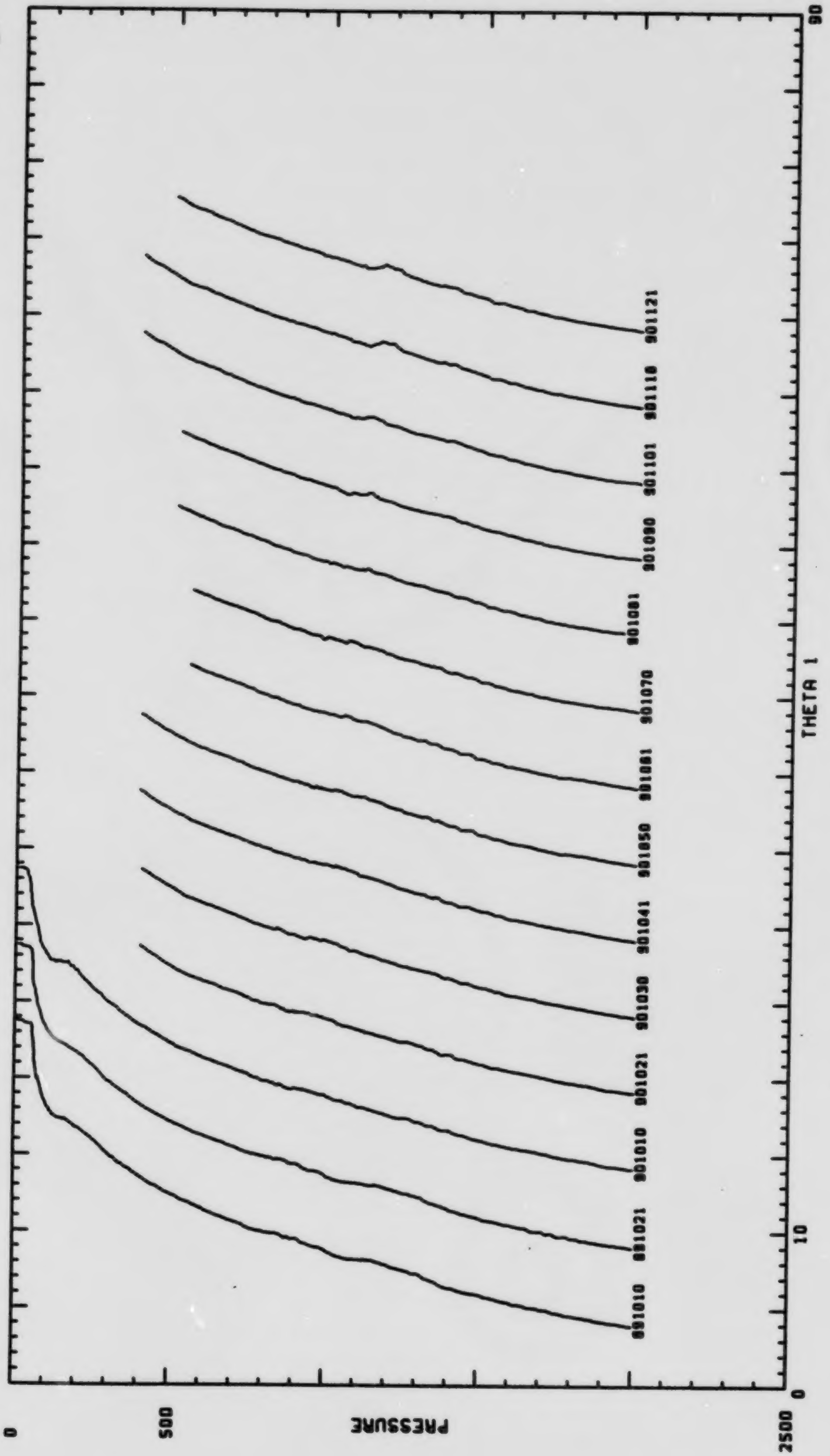
120

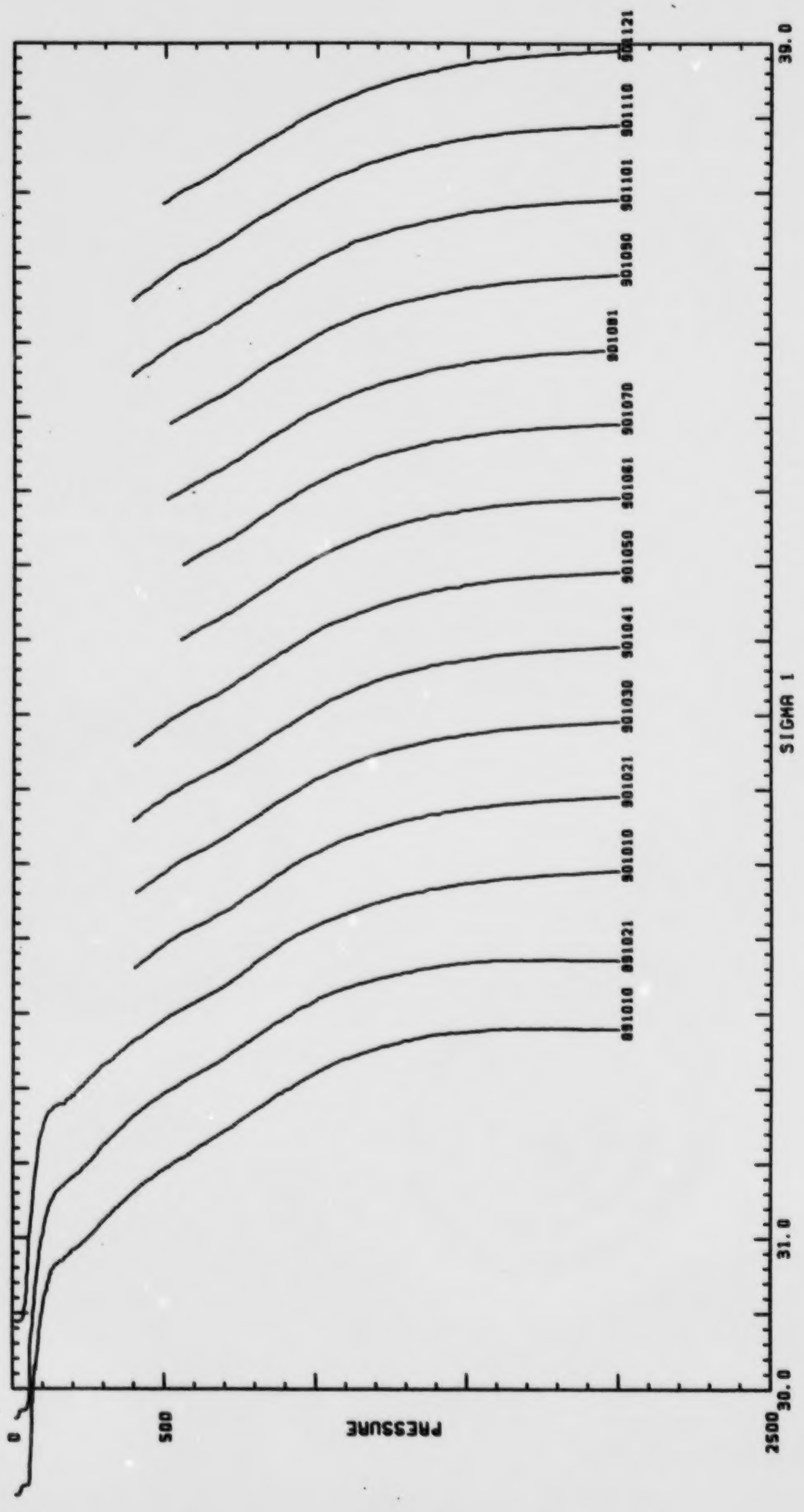


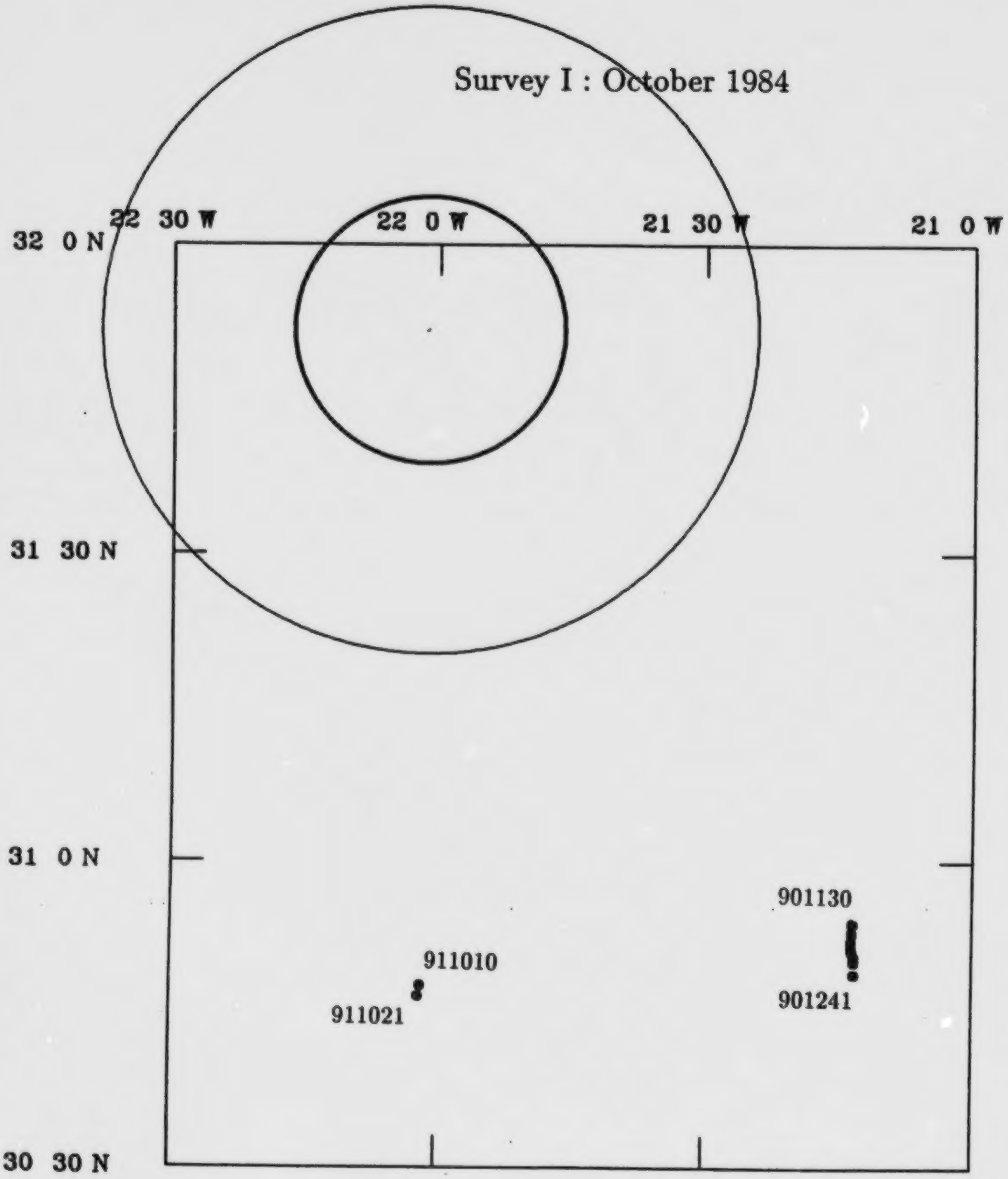

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
871230
871241
871250
871261
871270
871281
871290
871301
871310
871321
871330
871341
881010
881021

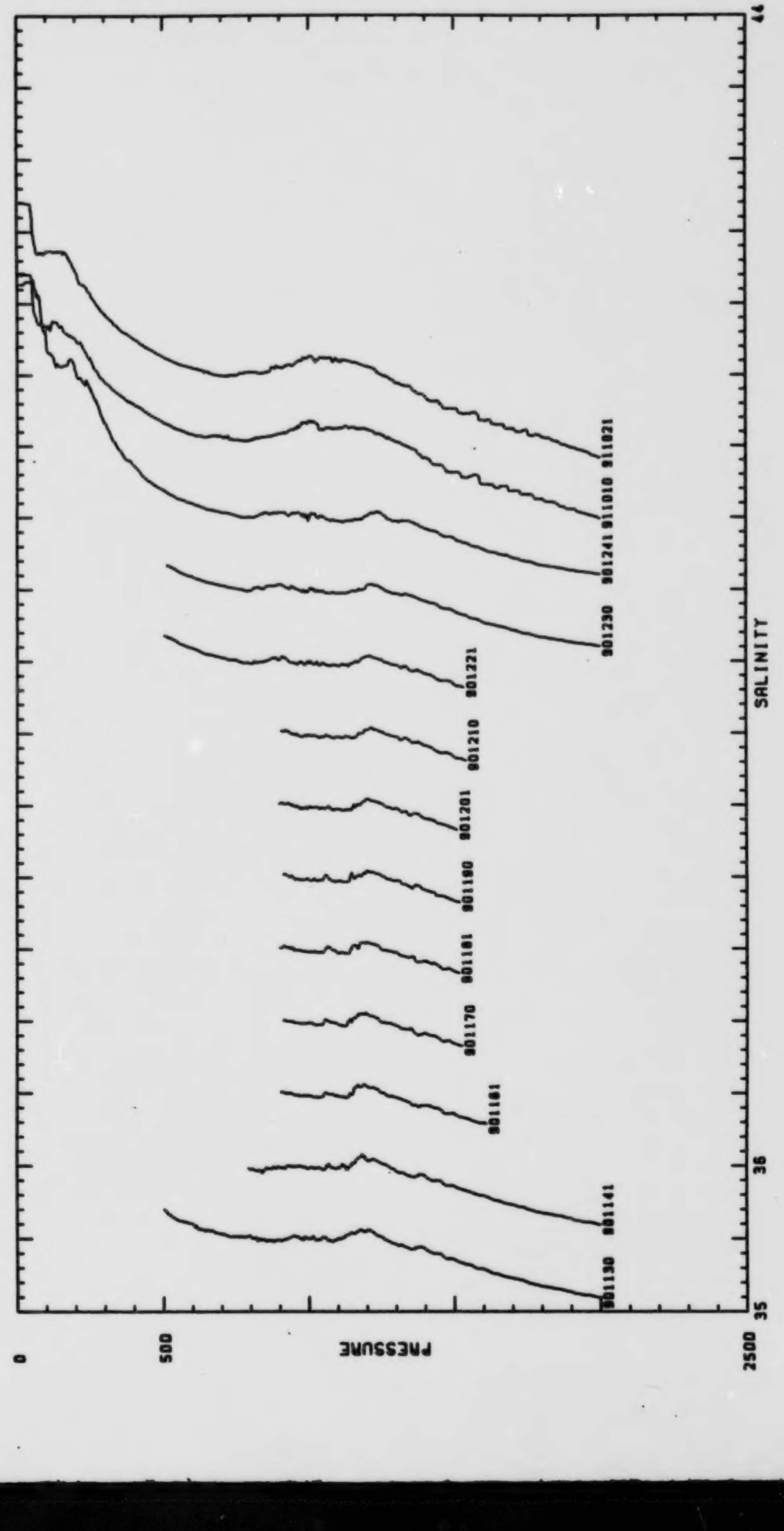

Survey I : October 1984
22 30 W
22 0 W
21 30 W
21 0 W
32 0 N
31 30 N
31 0 N
30 30 N
891010
901121

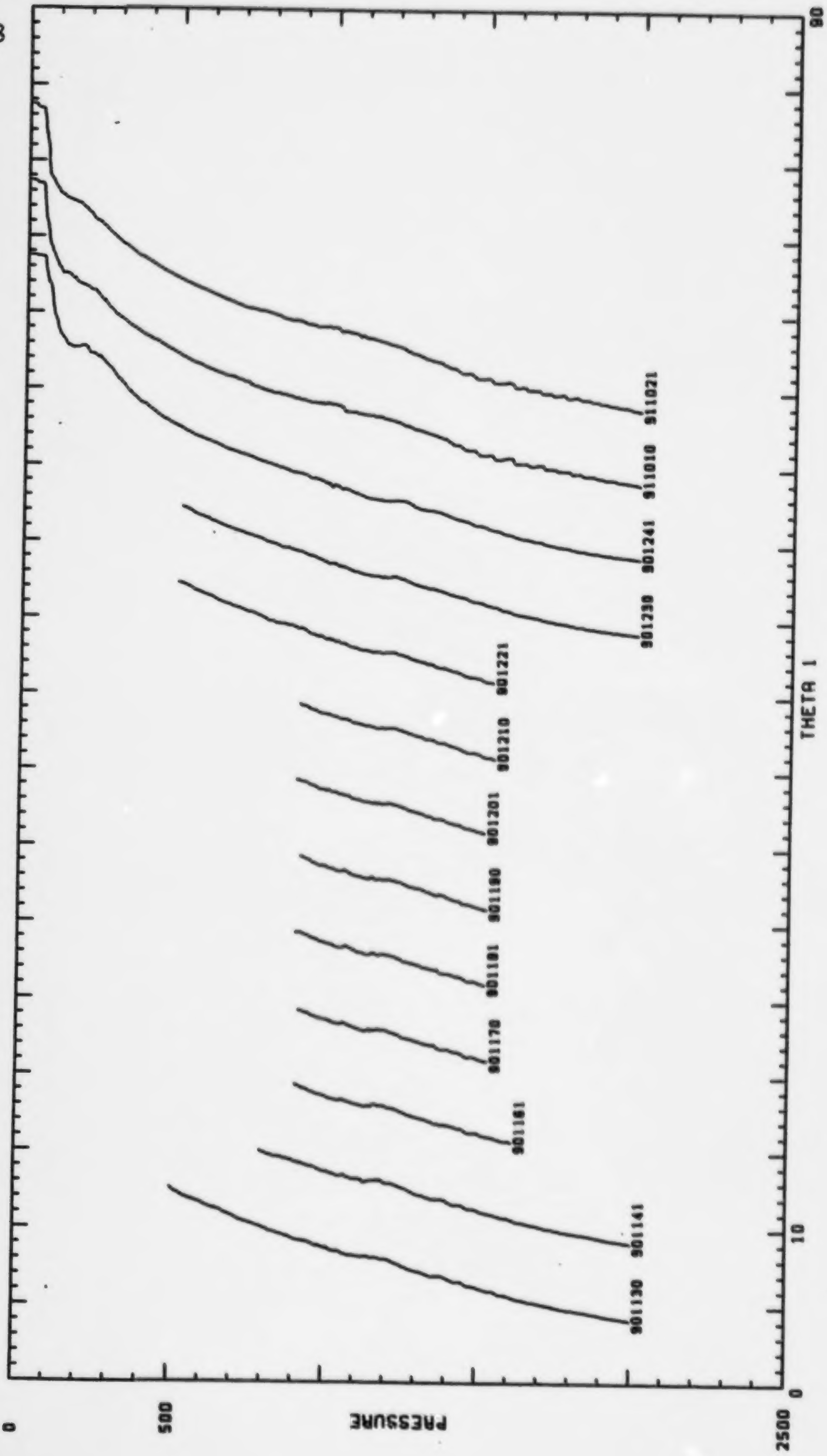

PRESSURE
0
500
2500
SALINITY
35
36
44
891010
891021
901010
901021
901030
901041
901050
901061
901070
901081
901090
901101
901110
901121

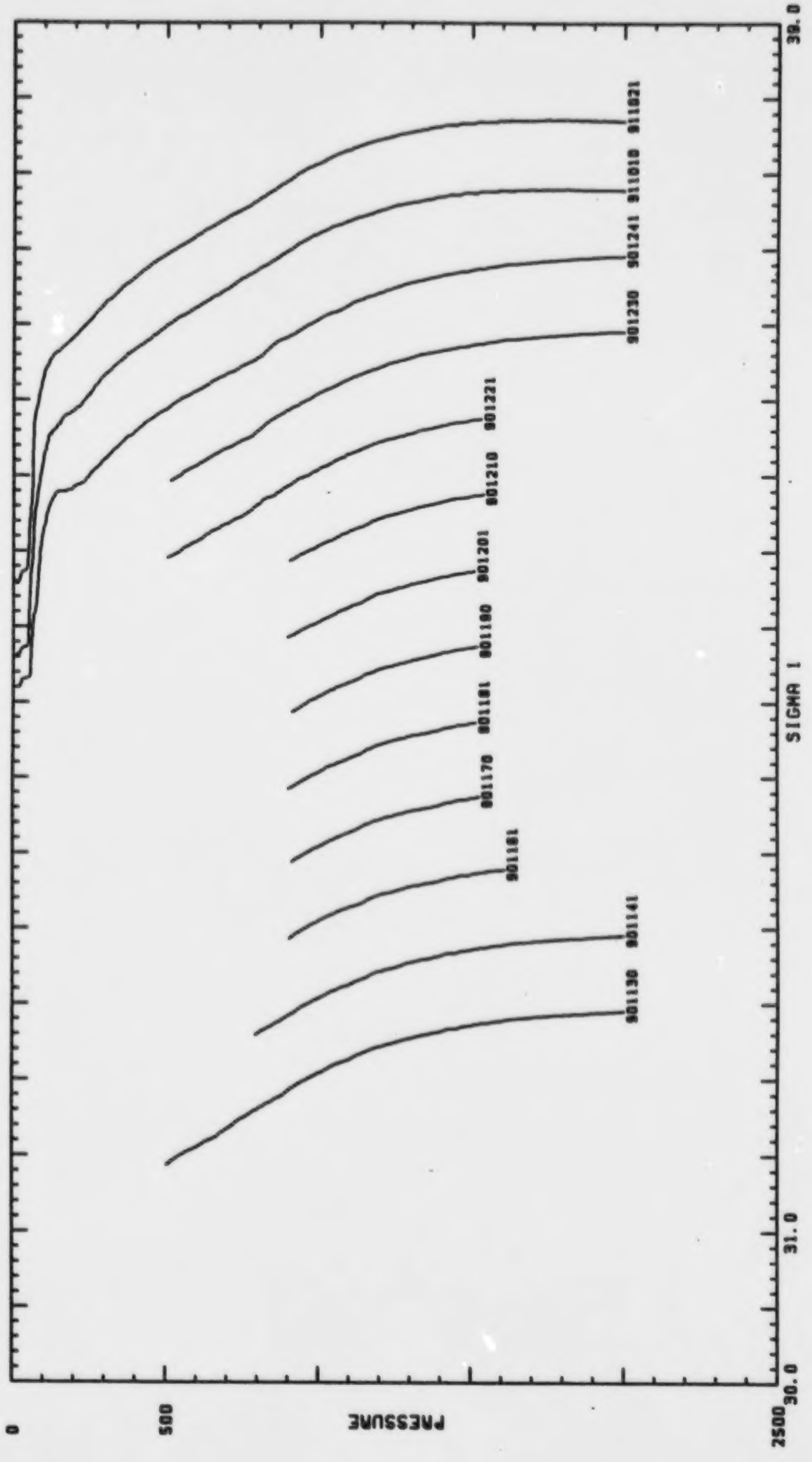

PRESSURE
0
500
2500
THETA 1
0
10
90


PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
891010
891021
901010
901021
901030
901041
901050
901061
901070
901081
901090
901101
901110
901121


Survey I : October 1984
22 30 W
22 0 W
21 30 W
21 0 W
32 0 N
31 30 N
31 0 N
30 30 N
901130
901241
911010
911021

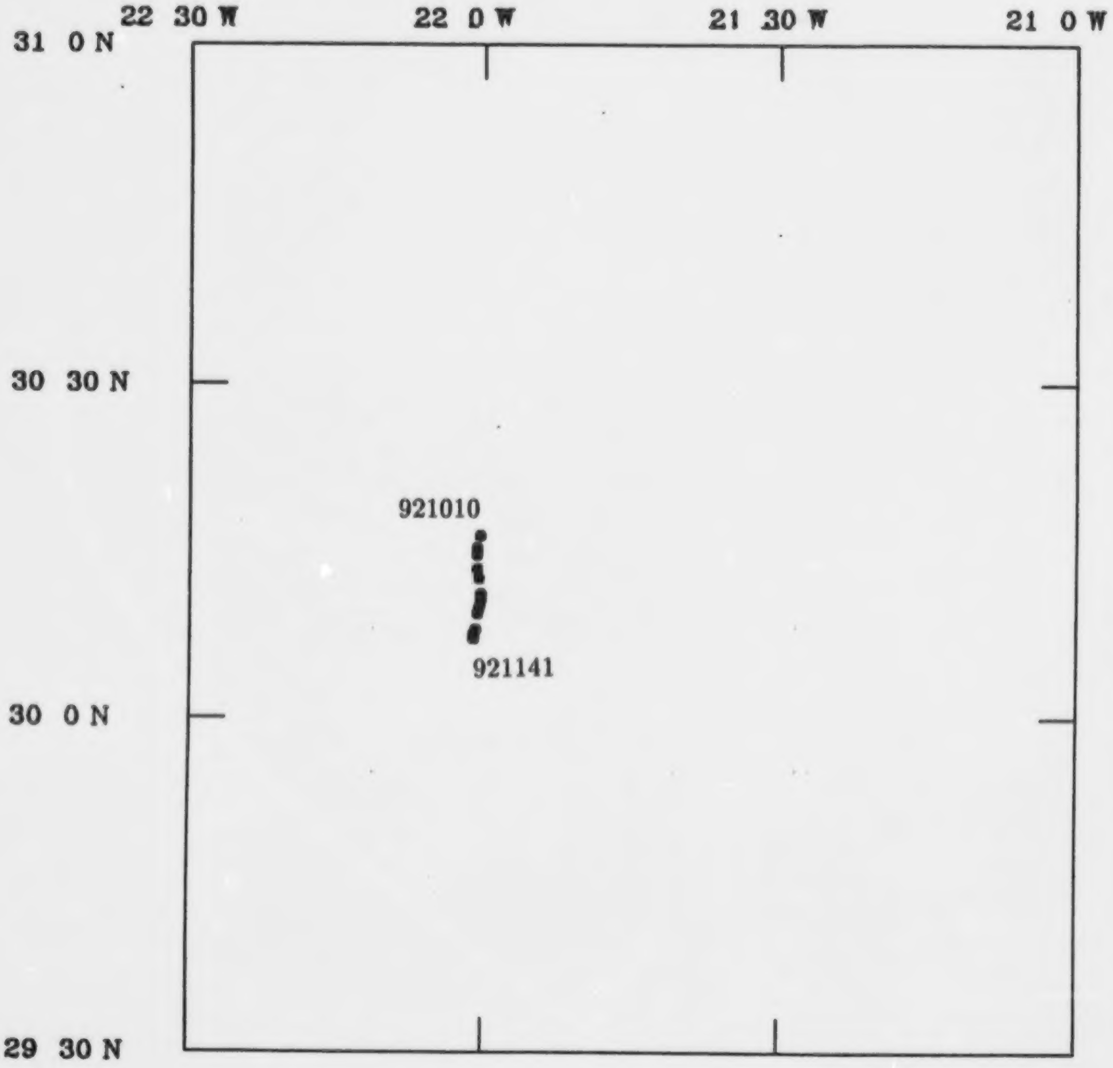

SALINITY
PRESSURE
35
36
44
0
500
2500
911021
911010
901241
901230
901221
901210
901201
901190
901181
901170
901161
901141
901130

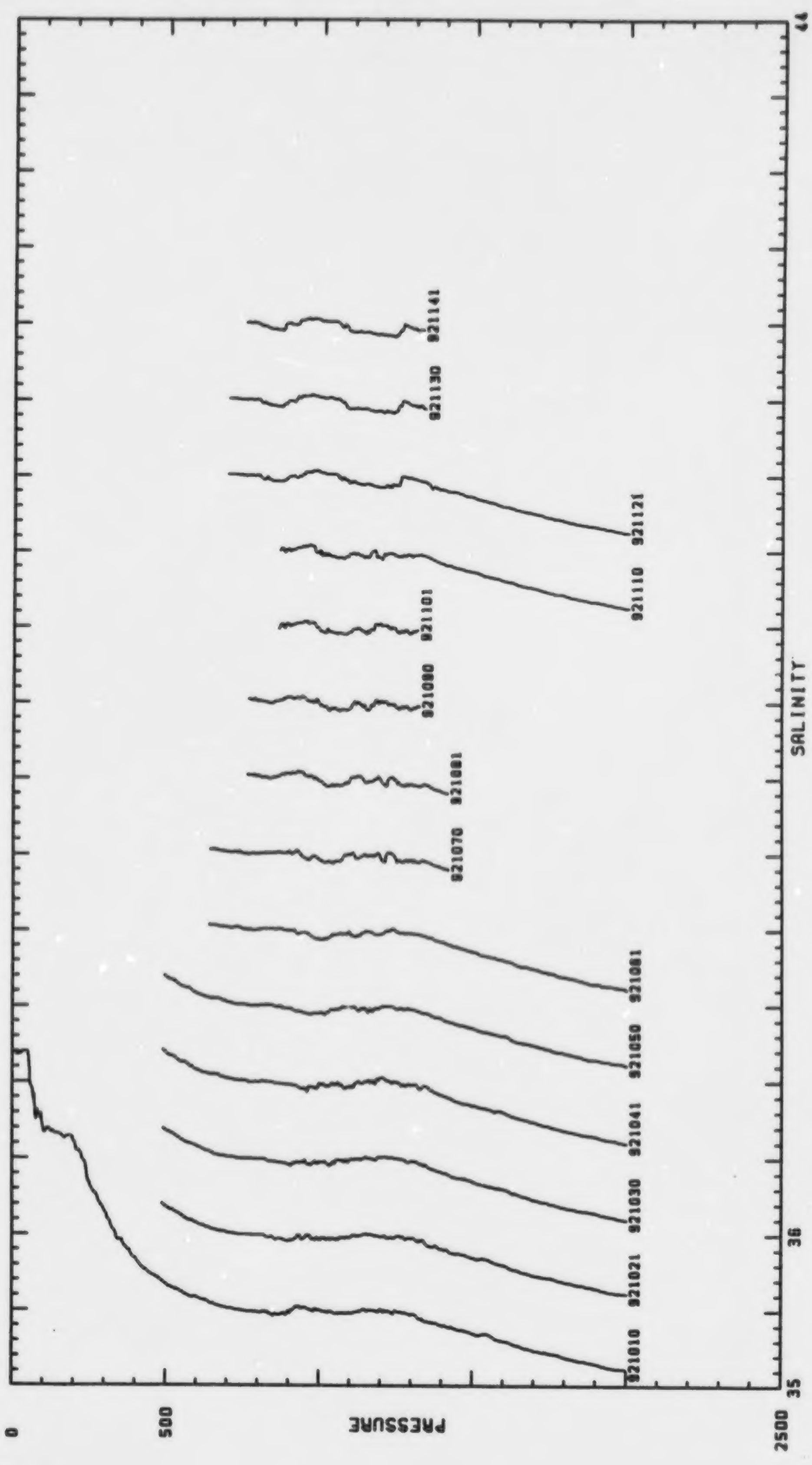

911021
911010
901241
901230
901221
901210
901201
901190
901181
901170
901161
901141
901130
THETA 1
0
10
90
PRESSURE
0
500
2500

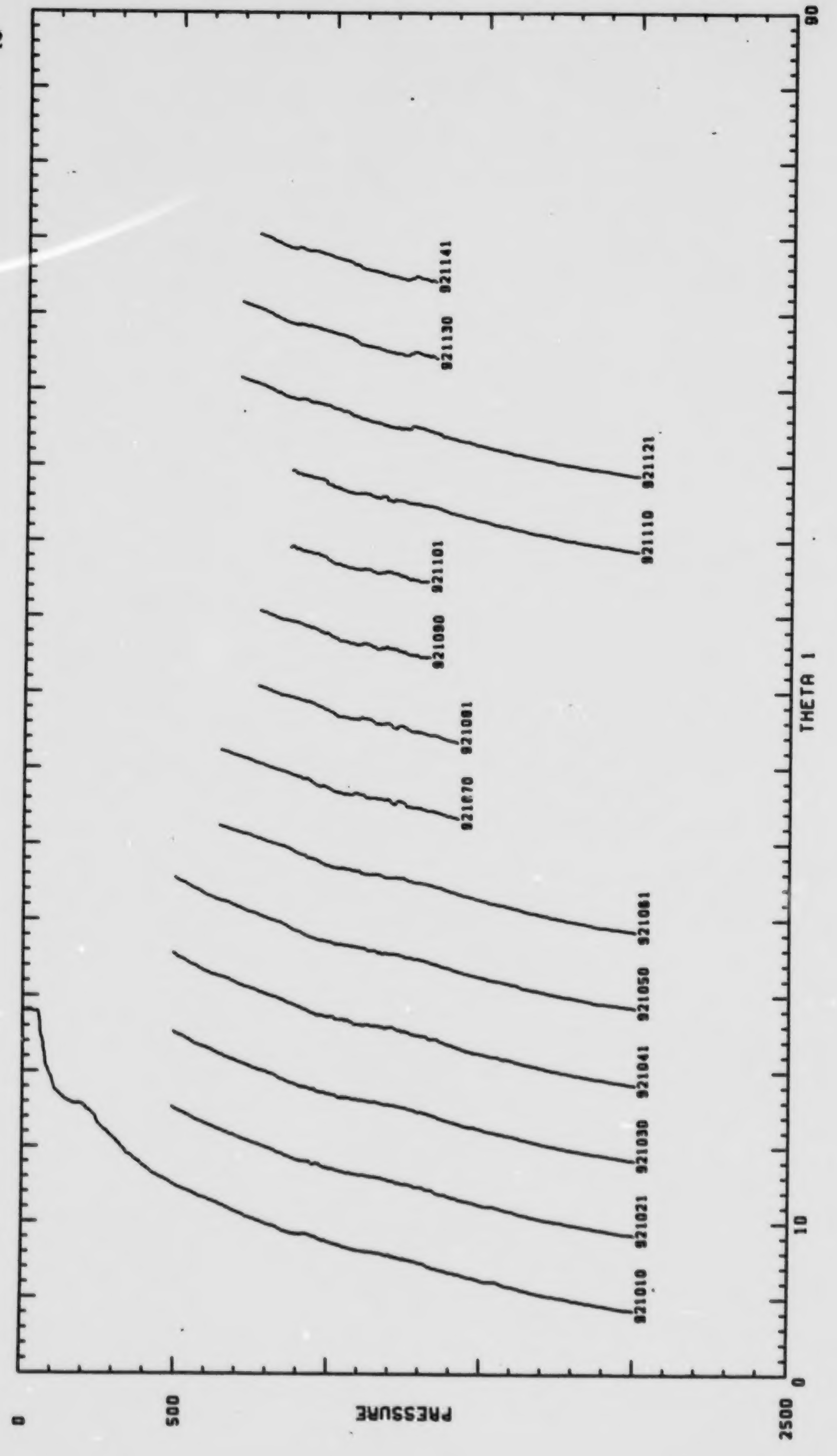


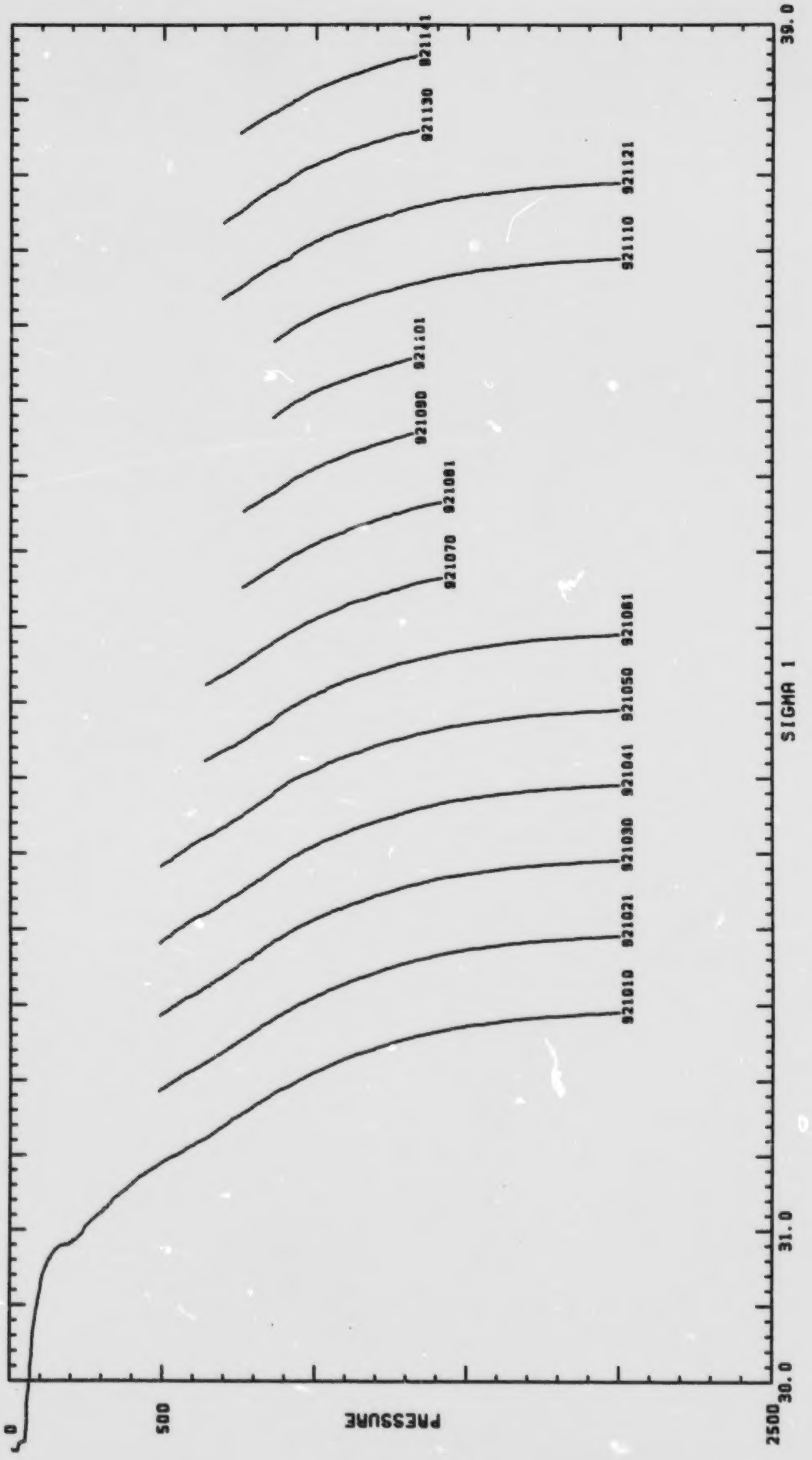
PRESSURE
0
500
2500
SIGMA I
30.0
31.0
38.0
901130
901141
901161
901170
901181
901190
901201
901210
901221
901230
901241
911010
911021

Survey I : October 1984



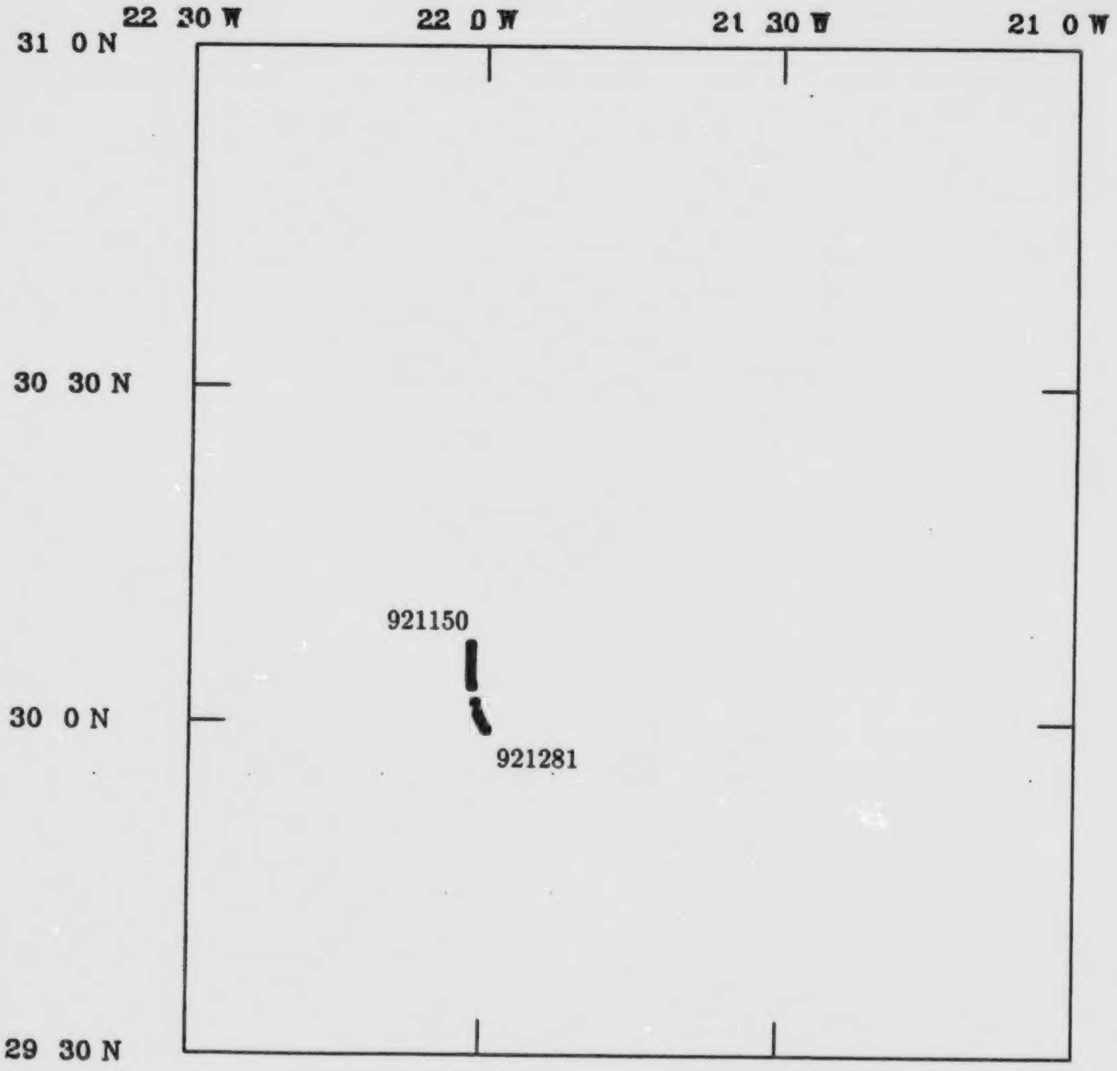

PRESSURE
0
500
2500
SALINITY
35
36
44
921010
921021
921030
921041
921050
921061
921070
921081
921090
921101
921110
921121
921130
921141

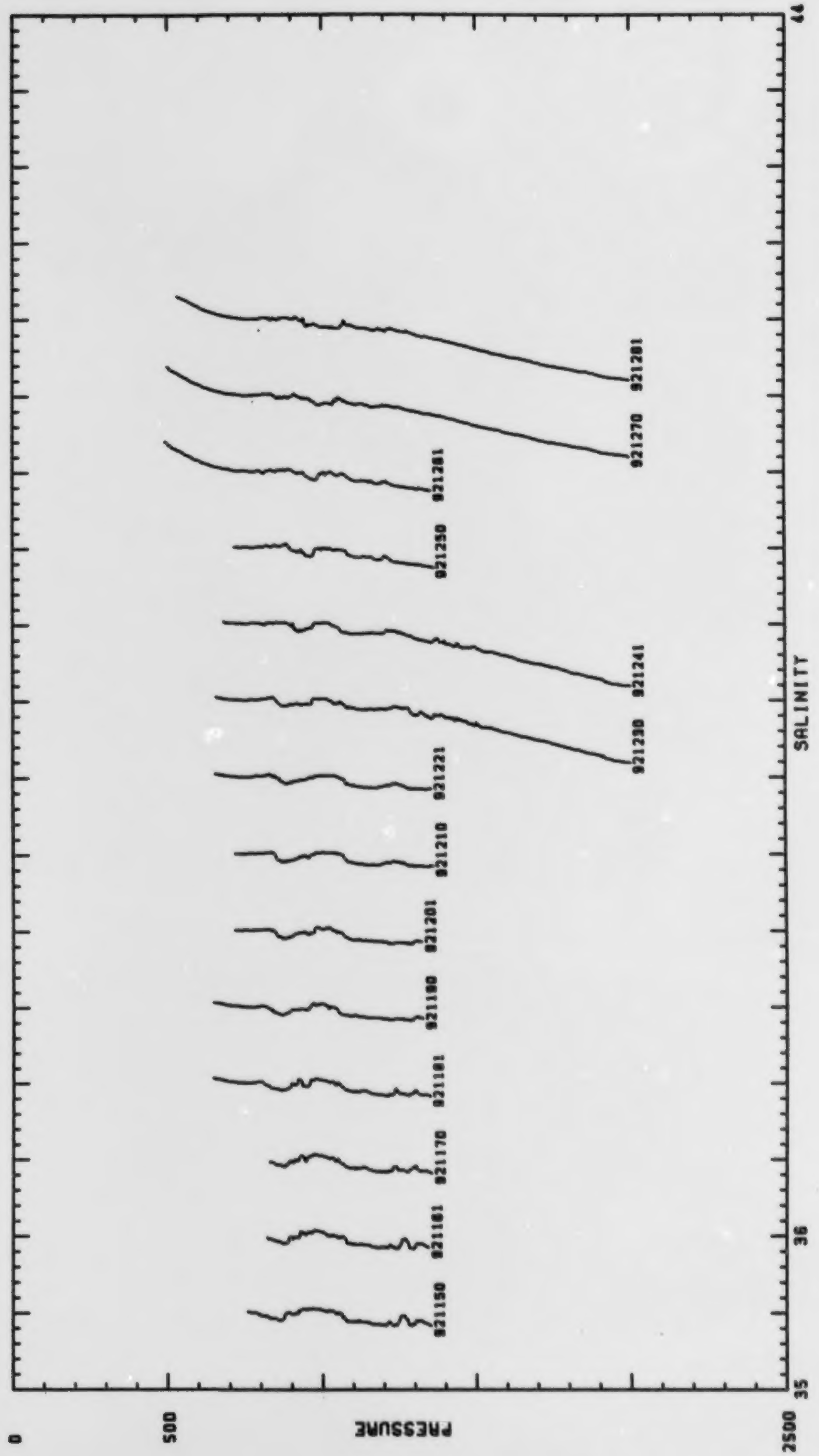

PRESSURE
0
500
2500
THETA 1
0
10
90
921010
921021
921030
921041
921050
921061
921070
921081
921090
921101
921110
921121
921130
921141

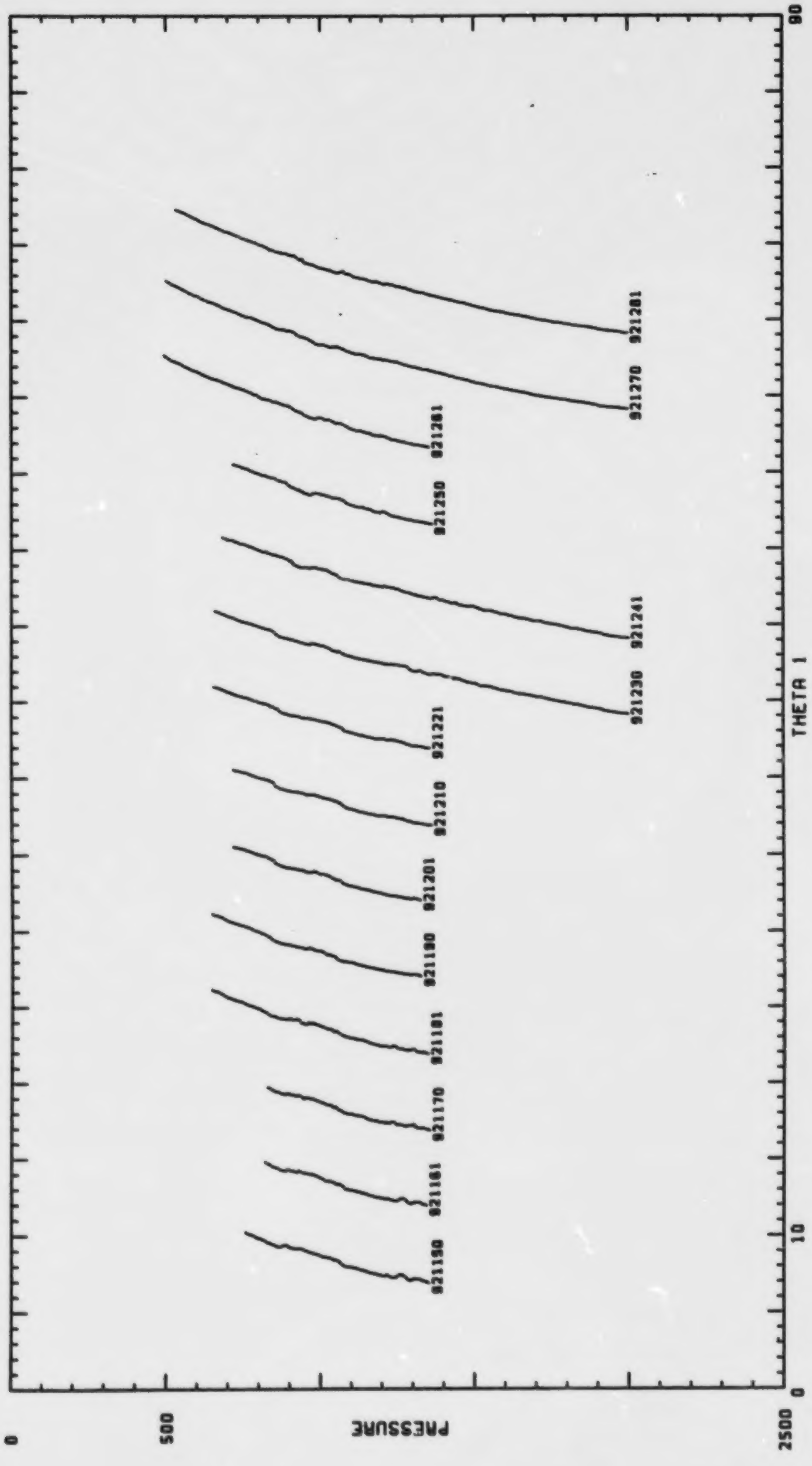


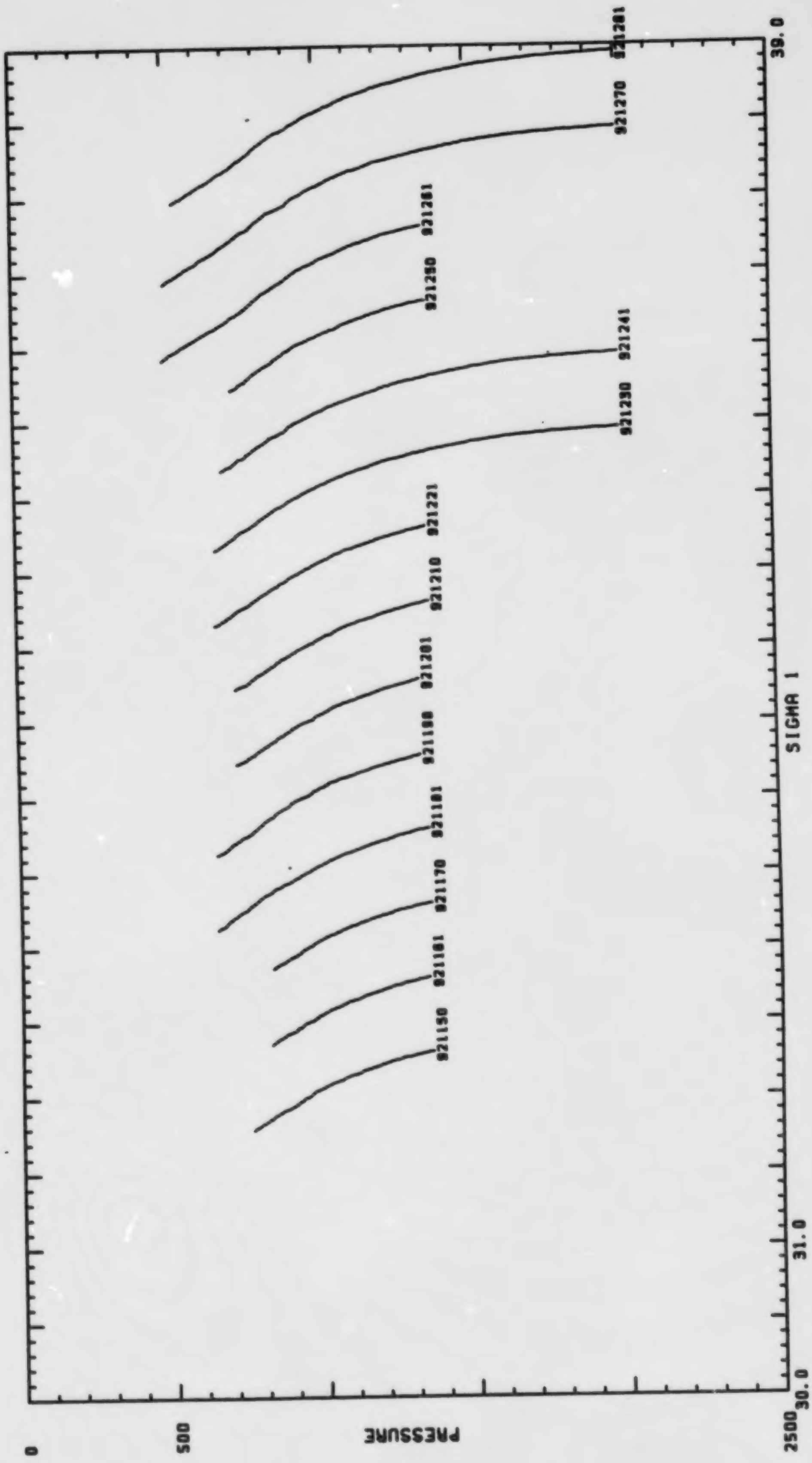
PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
921010
921021
921030
921041
921050
921061
921070
921081
921090
921101
921110
921121
921130
921141

Survey I : October 1984

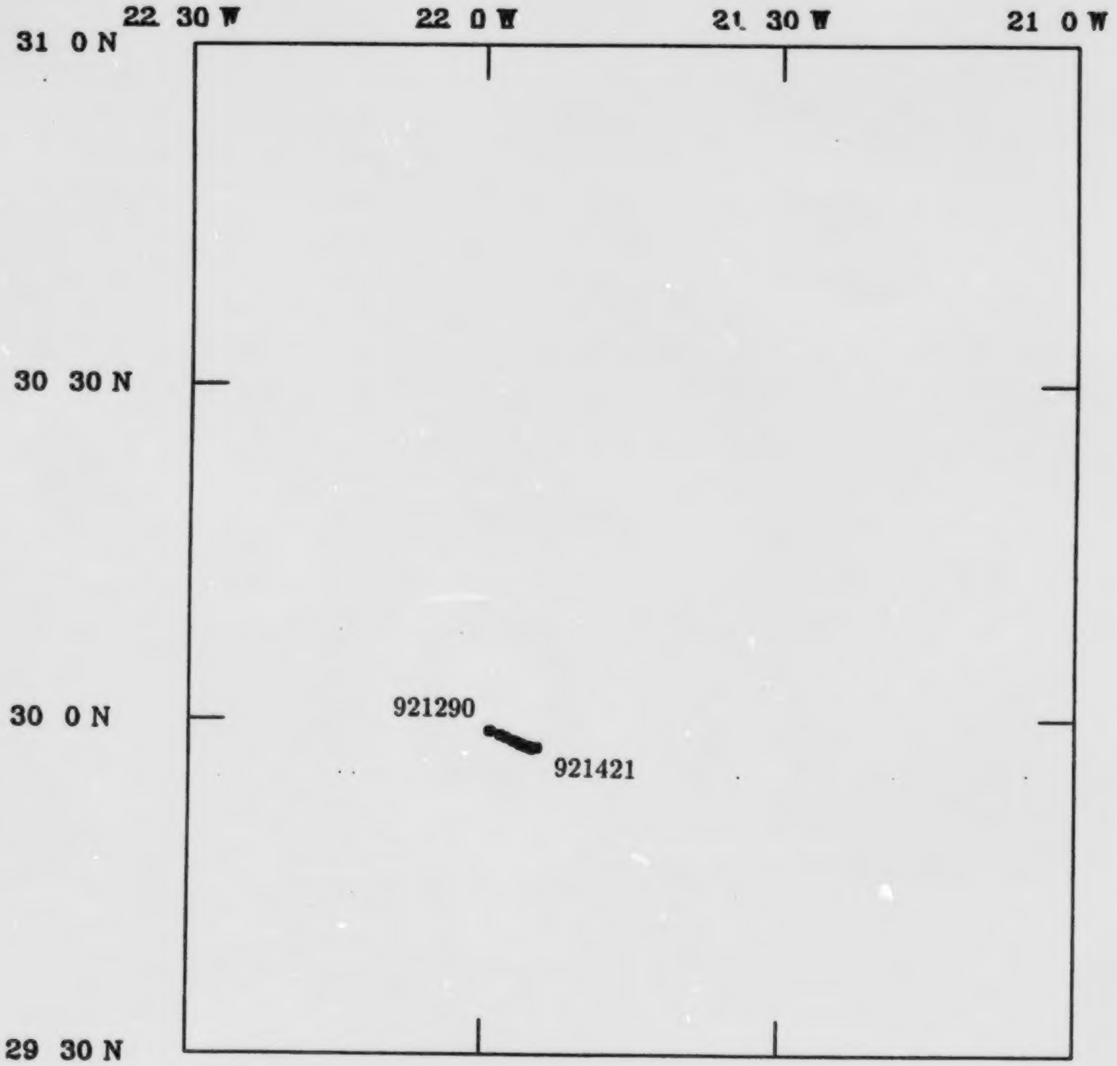


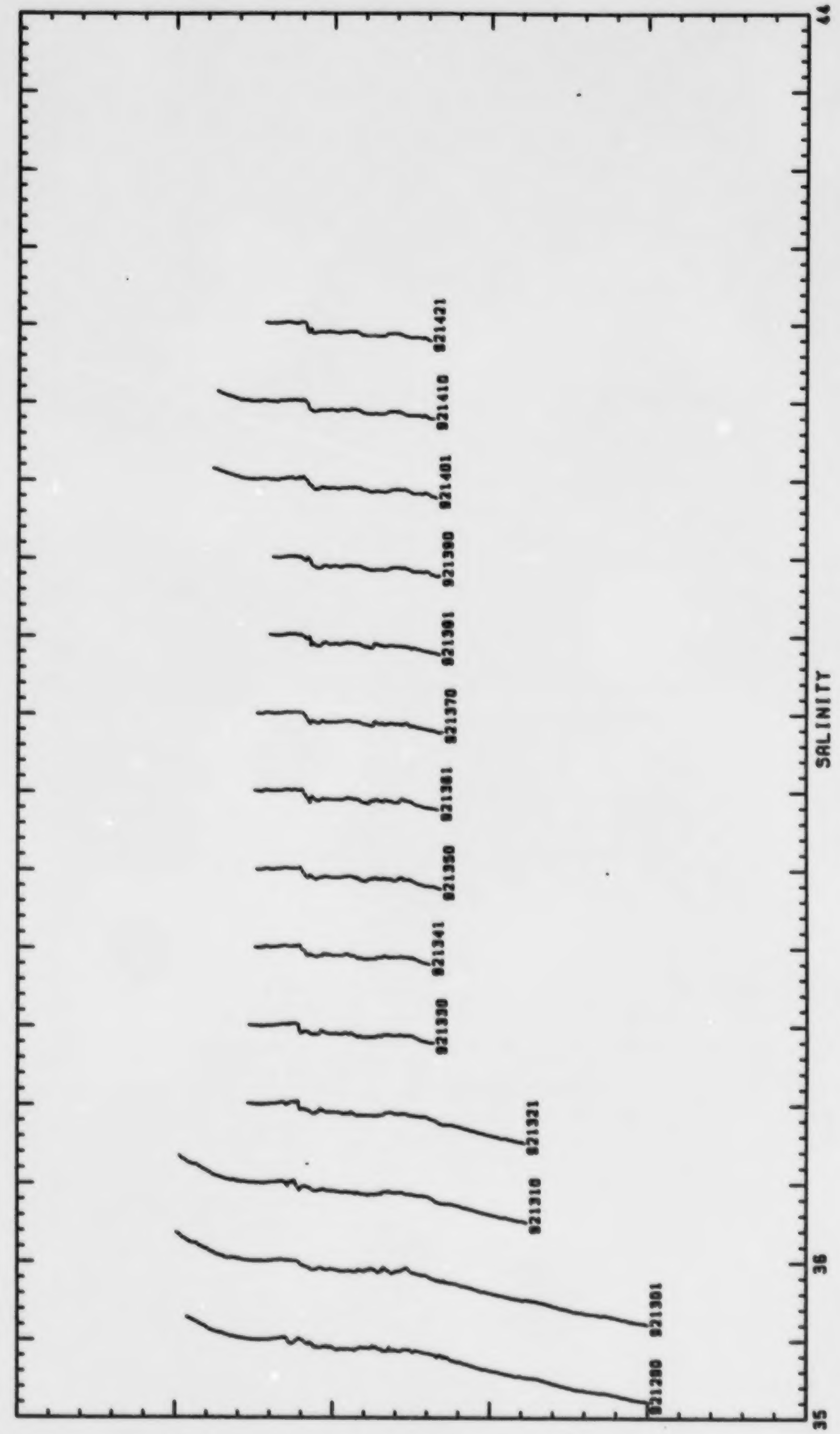

PRESSURE
0
500
2500
SALINITY
35
36
44
921150
921161
921170
921181
921190
921201
921210
921221
921230
921241
921250
921261
921270
921281

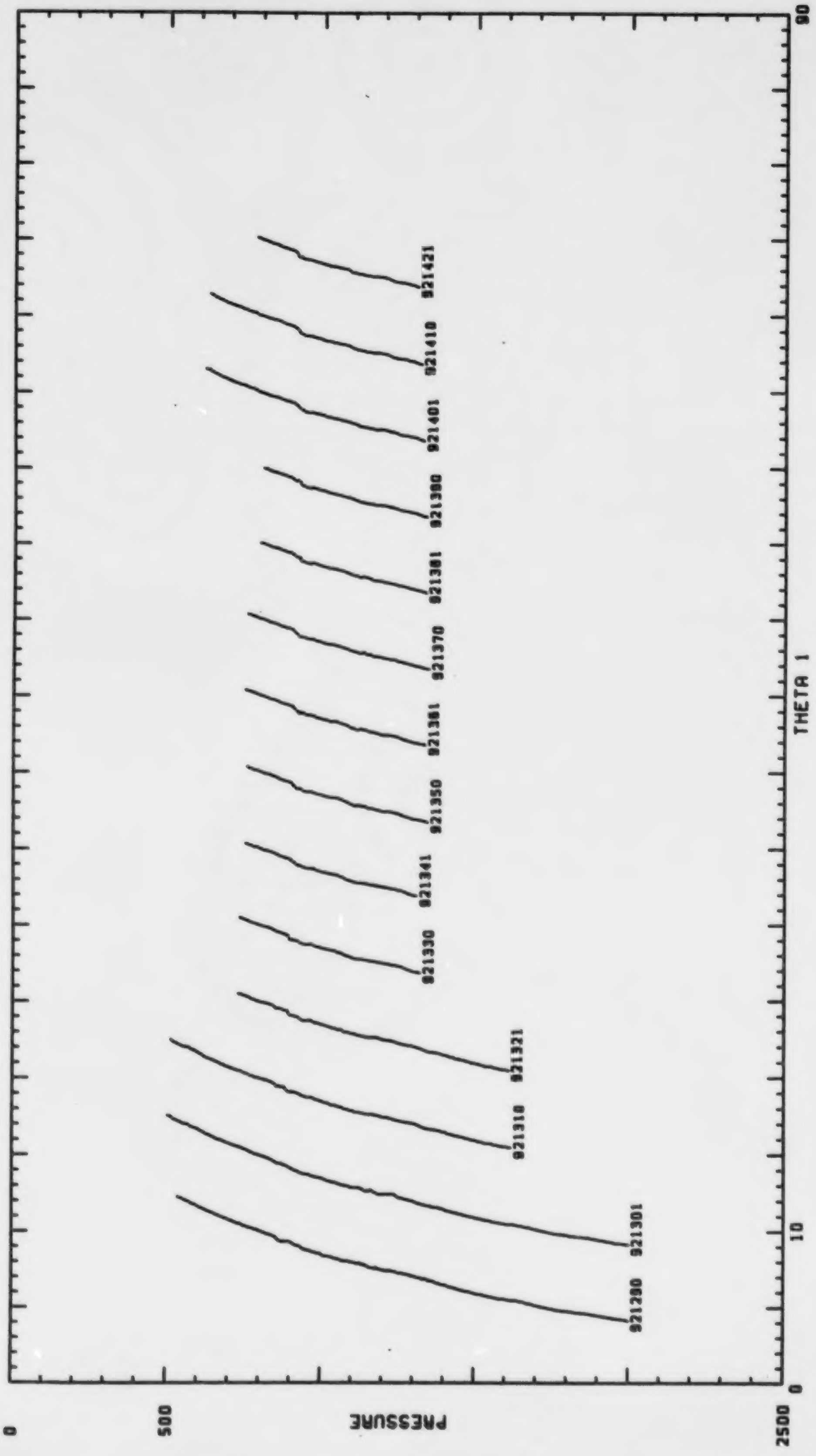

PRESSURE
0
500
2500
THETA 1
0
10
90
921150
921161
921170
921181
921190
921201
921210
921221
921230
921241
921250
921270

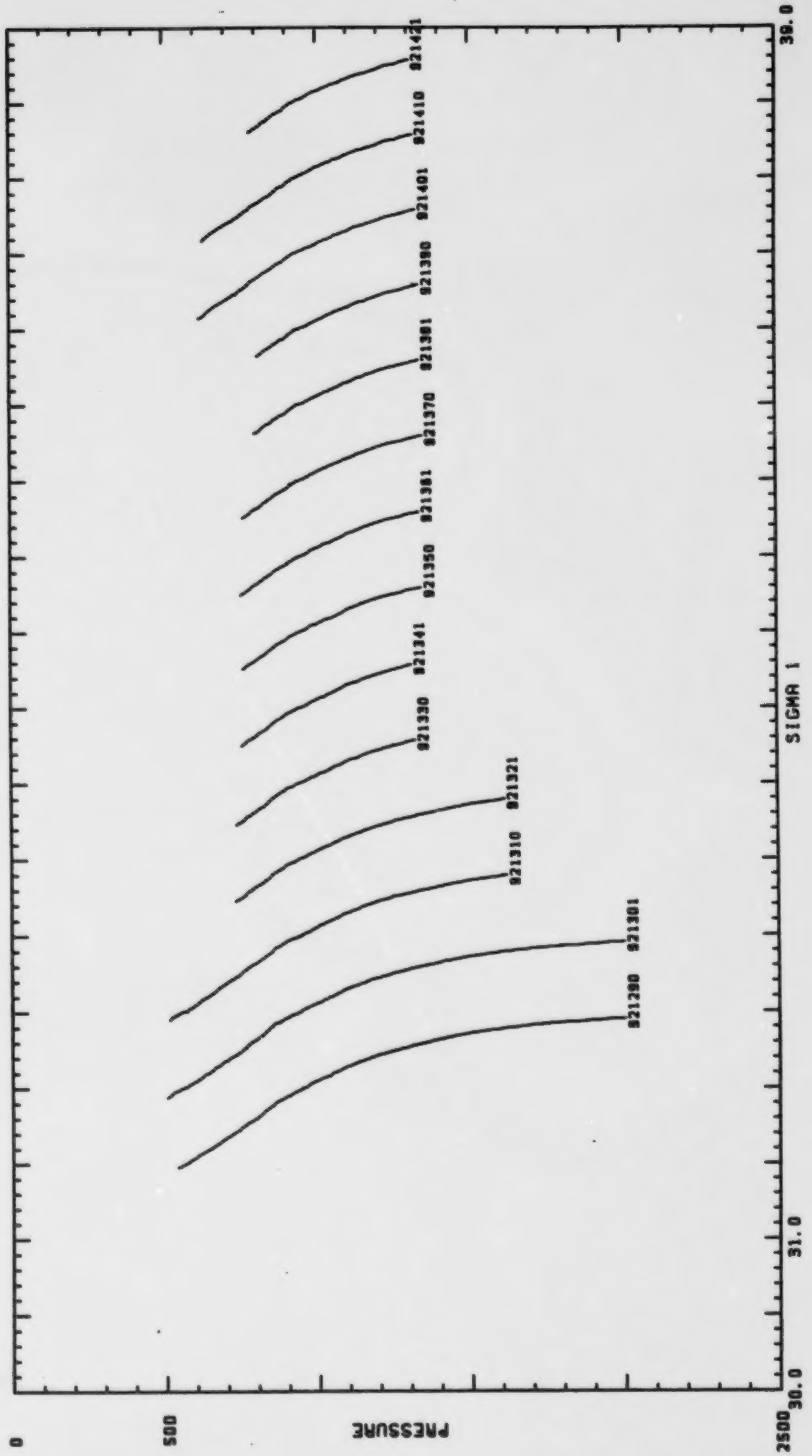

921150
921161
921170
921181
921190
921201
921210
921221
921230
921241
921250
921261
921270
921281
PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0

Survey I : October 1984



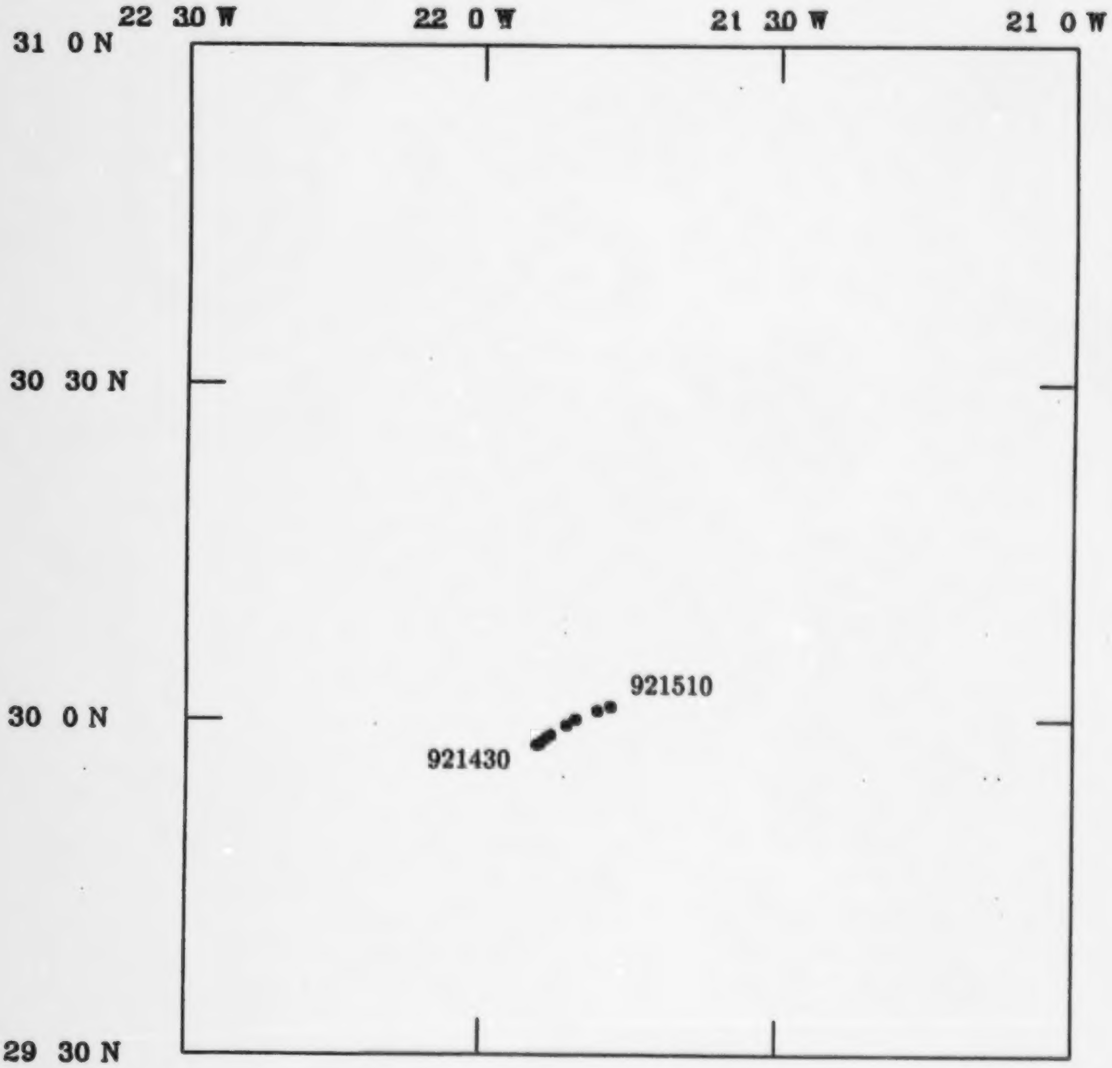

SALINITY
PRESSURE
0
500
2500
35
36
44
921280
921301
921310
921321
921330
921341
921350
921361
921370
921381
921390
921401
921410
921421

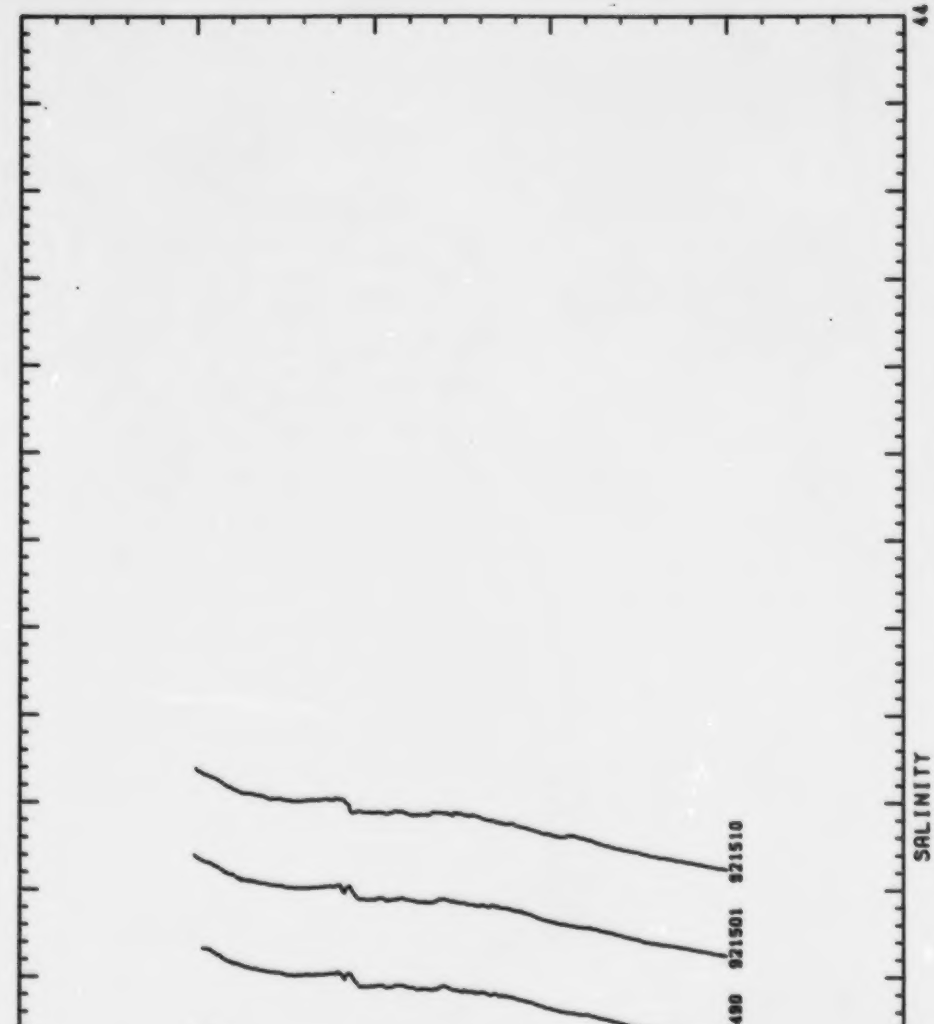

921290
921301
921310
921321
921330
921341
921350
921361
921370
921381
921390
921401
921410
921421
THETA 1
0
10
90
PRESSURE
0
500
2500

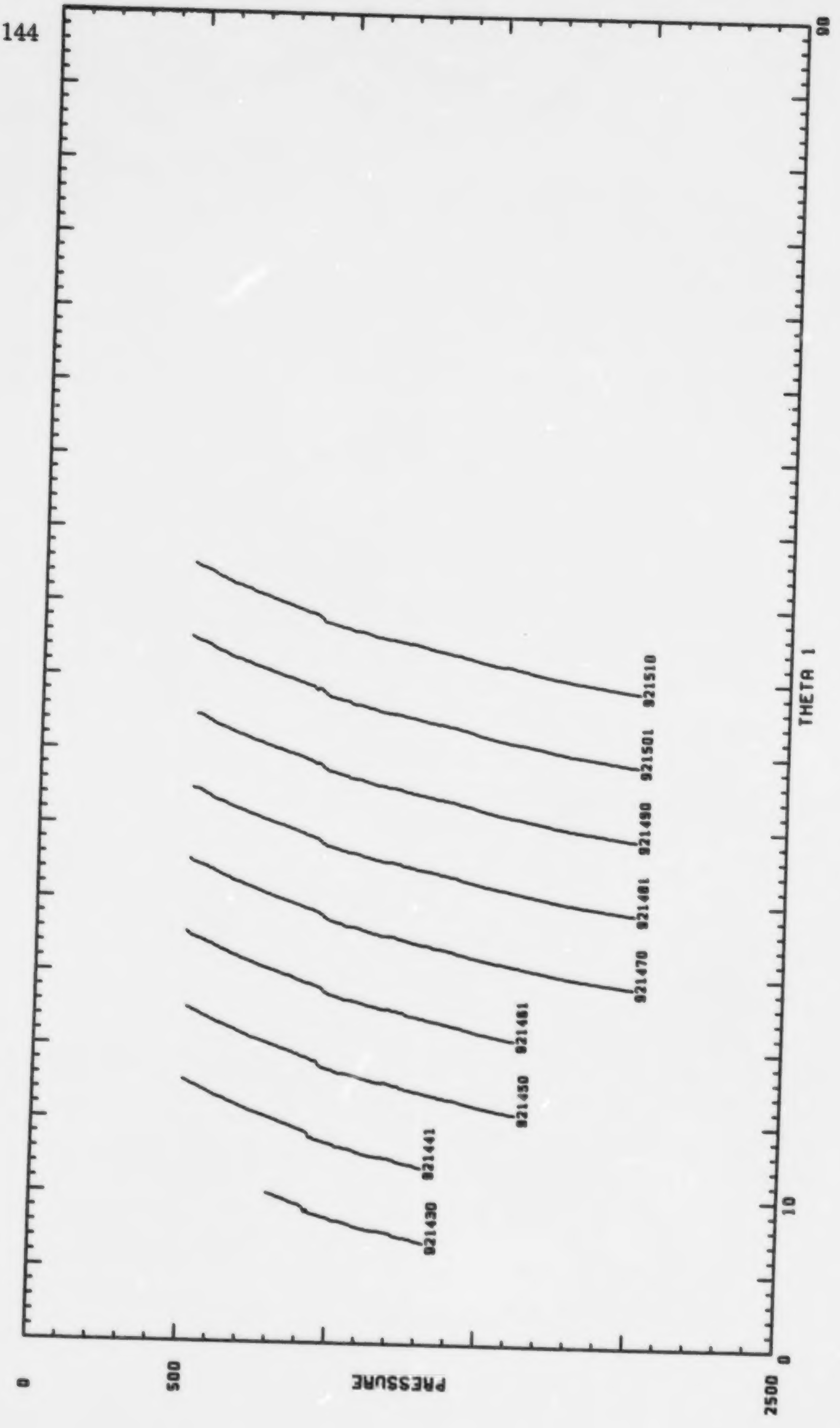


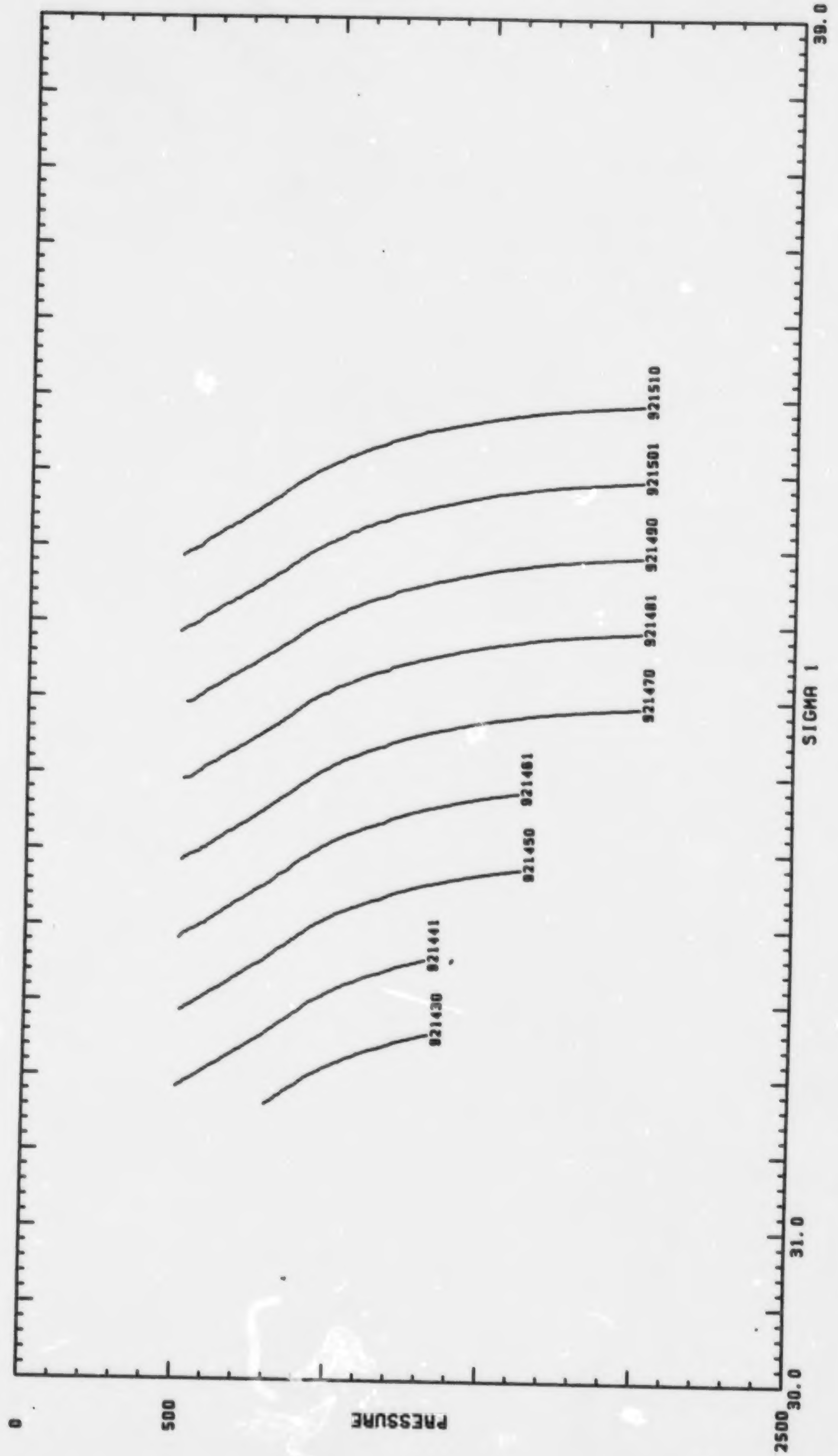
PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
921290
921301
921310
921321
921330
921341
921350
921381
921370
921381
921390
921401
921410
921421

Survey I : October 1984




SALINITY
PRESSURE
0
500
2500
35
36
44
921510
921501
921490
921481
921470
921461
921450
921441
921430


PRESSURE
0
500
2500
THETA 1
0
10
90
921430
921441
921450
921461
921470
921481
921490
921501
921510



921430
921441
921450
921461
921470
921481
921490
921501
921510
PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0

SURVEY II

JUNE 1985

CSS HUDSON

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
7	29° 48.2′	23° 3.0′	356389	152	—
8	29° 48.4′	23° 2.7′	43564	152	—
12	28° 12.5′	22° 34.2′	11918	153	54.5
13	28° 14.6′	22° 45.3′	18859	153	44.0
15	28° 15.5′	23° .2′	31932	153	40.7
16	28° 14.6′	23° 8.5′	38300	153	46.1
17	28° 15.0′	23° 20.0′	45546	153	53.8
18	28° .0′	23° 10.0′	55024	153	76.8
19	27° 59.3′	23° .4′	61891	153	75.8
20	28° 10.5′	22° 50.5′	69694	153	51.3
21	28° 20.0′	22° 50.1′	76361	153	30.9
22	28° 25.6′	23° .8′	83204	153	19.8
23	28° 35.0′	23° .0′	4030	154	7.7
24	28° 45.0′	23° .0′	10586	154	25.7
25	28° 34.5′	22° 49.4′	18580	154	7.6
26	28° 35.0′	22° 40.0′	24459	154	20.5
27	28° 25.0′	22° 40.0′	30332	154	28.0
28	28° 25.0′	22° 30.0′	36842	154	39.2
29	28° 35.0′	22° 30.0′	43647	154	34.2
30	28° 45.9′	22° 34.6′	51022	154	38.5
31	28° 45.2′	22° 45.4′	57686	154	28.2
32	28° 40.0′	22° 56.5′	64087	154	13.9
34	28° 34.4′	23° 9.9′	74171	154	20.9
35	28° 30.0′	23° 15.0′	79504	154	29.0
36	28° 25.0′	23° 11.0′	85061	154	29.5
37	28° 25.0′	22° 50.0′	7807	155	20.3
38	28° 25.6′	22° 54.4′	13976	155	17.9
39	28° 31.1′	22° 54.3′	19385	155	5.9
41	28° 26.8′	22° 50.9′	38642	155	16.2
44	28° 17.3′	22° 58.1′	65974	155	30.7
45	28° 20.0′	22° 57.0′	72985	155	24.9
46	28° 22.4′	22° 59.3′	78345	155	21.9
47	28° 24.0′	22° 57.0′	84865	155	17.3
48	28° 26.0′	22° 57.0′	2415	156	13.5
49	28° 29.9′	22° 56.1′	8896	156	5.8
50	28° 31.3′	22° 56.7′	13073	156	3.3
51	28° 32.7′	22° 56.8′	20601	156	.9
52	28° 35.5′	22° 57.4′	25038	156	4.4
54	28° 38.0′	22° 57.2′	35873	156	9.3
55	28° 40.5′	22° 57.0′	40419	156	14.2
56	28° 42.0′	22° 57.0′	46848	156	17.0
57	28° 45.2′	22° 56.7′	50902	156	23.3
58	28° 46.7′	22° 57.2′	59051	156	25.9
62	28° 49.0′	22° 56.9′	71360	156	30.4
63	28° 51.1′	22° 55.9′	77521	156	35.1

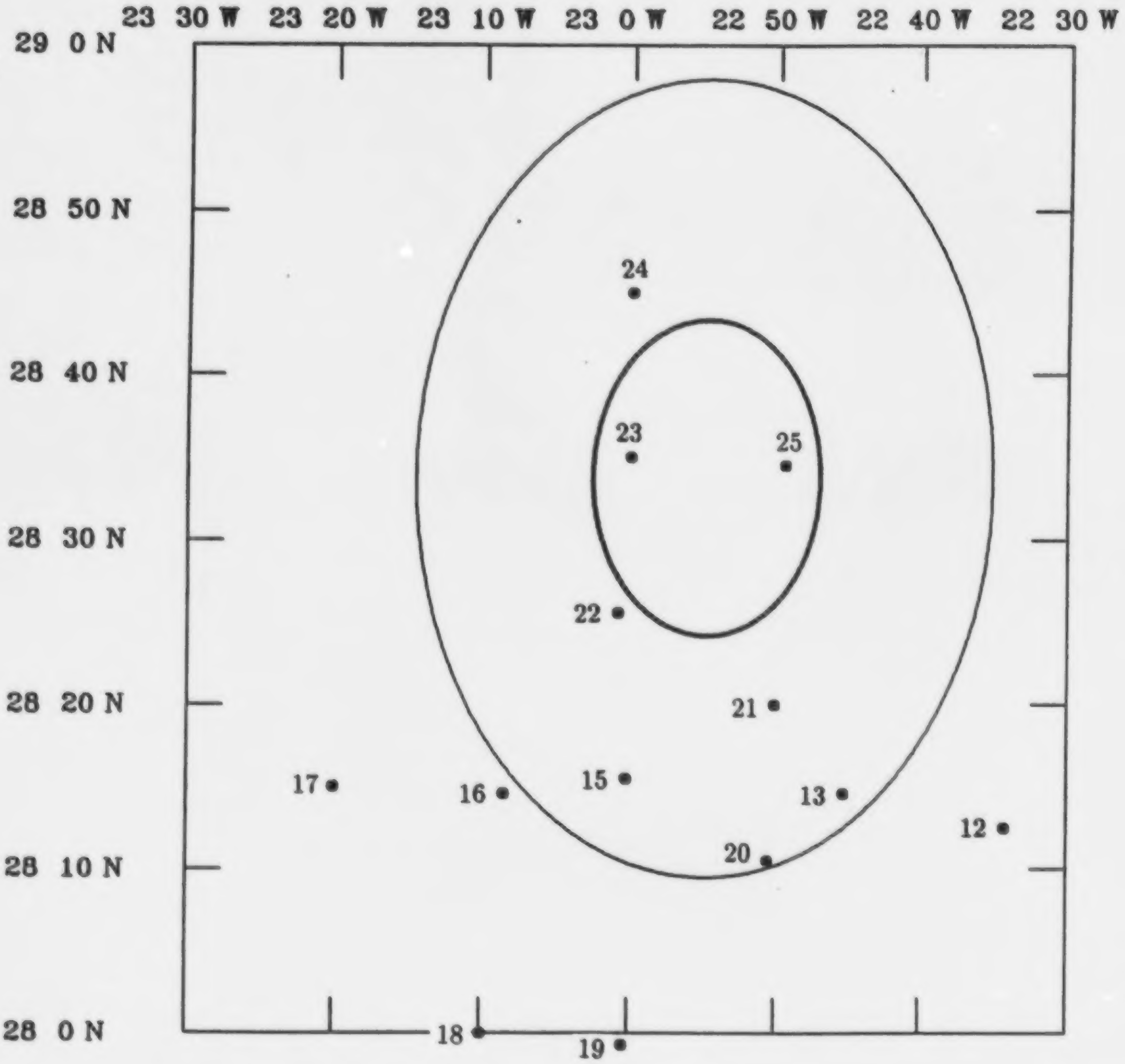
STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
64	28° 55.0′	22° 57.0′	82511	156	41.9
65	28° 38.0′	23° 13.0′	6147	157	25.1
66	28° 37.0′	23° 12.2′	10066	157	23.8
67	28° 35.8′	23° 8.9′	16824	157	18.6
68	28° 35.0′	23° 7.0′	21188	157	15.7
69	28° 33.3′	23° 4.5′	25309	157	12.2
70	28° 33.0′	23° 3.0′	31933	157	9.8
71	28° 31.4′	22° 59.4′	36141	157	5.7
72	28° 30.0′	22° 57.0′	40844	157	5.9
75	28° 28.0′	22° 53.0′	57515	157	10.0
76	28° 26.7′	22° 50.8′	61323	157	13.4
77	28° 26.0′	22° 49.0′	65523	157	15.9
79	28° 23.6′	22° 47.3′	82174	157	20.2
80	28° 24.0′	22° 45.0′	277	158	22.1
81	28° 21.7′	22° 43.2′	4484	158	26.3
82	28° 22.0′	22° 41.0′	10840	158	28.5
83	28° 21.0′	22° 38.4′	15016	158	32.4
84	28° 19.6′	22° 37.4′	18986	158	34.7
85	28° 18.6′	22° 35.5′	25412	158	37.8
86	28° 17.9′	22° 33.3′	29323	158	41.1
89	28° 42.1′	22° 41.9′	50145	158	35.1
91	28° 40.4′	22° 44.6′	57502	158	28.7
92	28° 39.0′	22° 47.0′	61634	158	23.2
94	28° 37.8′	22° 48.1′	74775	158	20.0
95	28° 38.0′	22° 51.3′	81406	158	15.6
96	28° 37.0′	22° 53.0′	85583	158	11.7
97	28° 35.1′	22° 55.6′	3206	159	5.2
98	28° 34.0′	22° 57.0′	8970	159	1.8
99	28° 32.4′	22° 58.9′	16687	159	3.6
100	28° 32.0′	23° 1.2′	20799	159	7.7
101	28° 31.1′	23° 3.2′	27271	159	11.9
105	28° 30.1′	23° 5.9′	41702	159	17.4
106	28° 29.0′	23° 7.2′	46958	159	20.7
108	28° 28.0′	23° 9.0′	56858	159	24.8
109	28° 27.5′	23° 8.7′	61002	159	24.9
110	28° 27.0′	23° 11.0′	65231	159	29.1
112	28° 26.0′	23° 13.0′	72354	159	33.5
113	28° 25.0′	23° 15.5′	78731	159	38.6
114	28° 22.7′	22° 54.4′	1161	160	17.0
11401	28° 27.7′	22° 54.4′	4485	160	5.0
11402	28° 27.7′	22° 54.4′	6287	160	5.0
11403	28° 27.7′	22° 54.4′	7908	160	5.0
11404	28° 27.7′	22° 54.4′	9518	160	5.0
11405	28° 27.7′	22° 54.4′	11216	160	5.0
11406	28° 27.7′	22° 54.4′	12760	160	5.0

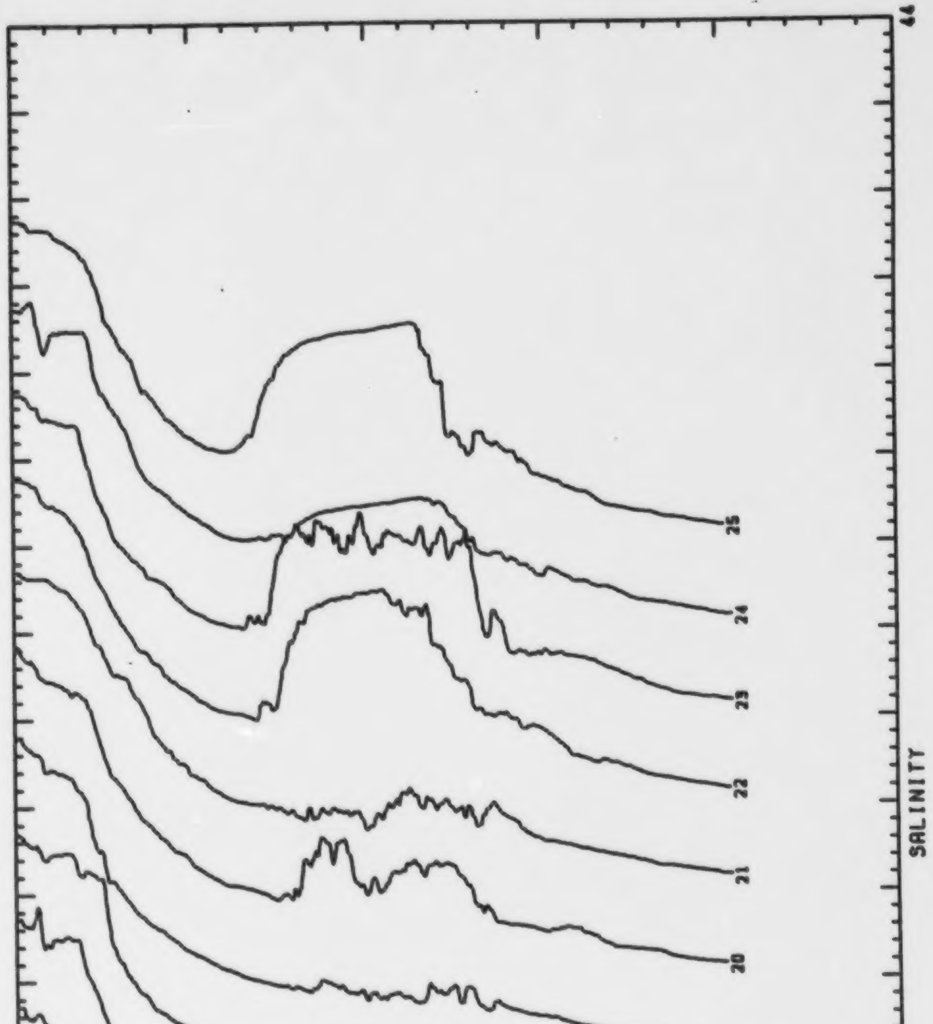
STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY.	RADIUS (km)
11407	28° 27.7′	22° 54.4′	14272	160	5.0
11408	28° 27.7′	22° 54.4′	15830	160	5.0
11409	28° 27.7′	22° 54.4′	17351	160	5.0
11410	28° 27.7′	22° 54.4′	18919	160	5.0
11411	28° 27.7′	22° 54.4′	20900	160	5.0
11412	28° 27.7′	22° 54.4′	23739	160	5.0
11413	28° 27.7′	22° 54.4′	25319	160	5.0
115	28° 18.7′	22° 52.9′	28708	160	24.2
118	28° 15.0′	22° 54.0′	54702	160	28.5
120	28° 17.8′	22° 54.8′	67018	160	23.6
121	28° 19.5′	22° 56.5′	74070	160	19.8
12101	28° 19.5′	22° 56.5′	77760	160	17.4
12102	28° 19.2′	22° 55.9′	81319	160	17.8
123	28° 18.7′	22° 56.1′	10843	161	21.3
124	28° 22.0′	22° 57.4′	16053	161	15.4
125	28° 23.8′	22° 56.5′	20245	161	13.2
127	28° 25.6′	22° 56.5′	30864	161	10.6
129	28° 28.0′	22° 57.0′	41876	161	6.7
131	28° 30.5′	22° 57.3′	54802	161	3.4
133	28° 33.0′	22° 56.4′	65975	161	5.2
134	28° 34.2′	22° 57.3′	70052	161	5.2
135	28° 35.9′	22° 56.1′	76453	161	8.5
136	28° 38.0′	22° 57.0′	80825	161	10.9
137	28° 40.0′	22° 57.0′	85037	161	13.9
138	28° 42.0′	22° 57.0′	3028	162	17.0
140	28° 43.8′	22° 56.7′	14237	162	19.8
141	28° 45.0′	22° 56.6′	18490	162	21.7
143	28° 48.0′	22° 57.0′	32182	162	26.4
145	28° 47.7′	22° 57.9′	39699	162	25.9
14501	28° 47.7′	22° 57.9′	41636	162	35.6
14502	28° 47.7′	22° 57.9′	43192	162	35.6
14503	28° 47.7′	22° 57.9′	44882	162	35.6
14504	28° 47.7′	22° 57.9′	46502	162	35.6
14505	28° 47.7′	22° 57.9′	48260	162	35.6
14506	28° 46.7′	22° 56.9′	50019	162	34.3
149	28° 49.9′	22° 57.8′	69025	162	29.4
151	28° 42.0′	23° 13.0′	3566	163	33.5
153	28° 40.3′	23° 10.7′	14745	163	28.1
155	28° 39.1′	23° 8.8′	24445	163	23.8
158	28° 37.5′	23° 7.0′	39052	163	19.3
160	28° 35.1′	23° 4.9′	52796	163	13.6
162	28° 34.5′	23° 2.6′	62774	163	9.2
164	28° 33.3′	23° 1.0′	74291	163	5.4
166	28° 31.5′	22° 59.0′	78619	163	.4
168	28° 29.7′	22° 56.3′	83911	163	5.8

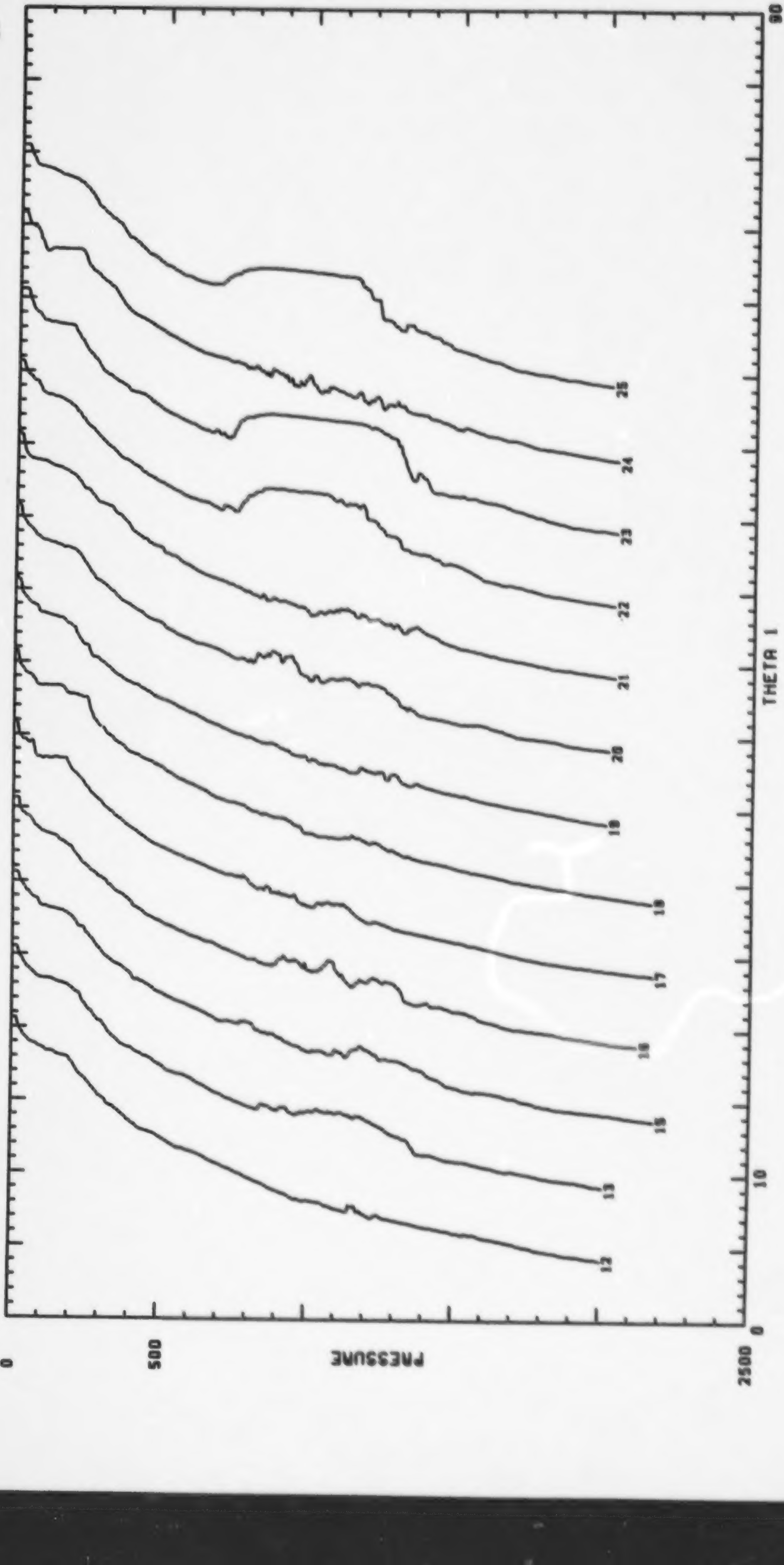
STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
169	28° 28.5′	22° 55.0′	3936	164	9.1
170	28° 27.0′	22° 53.0′	7964	164	13.8
171	28° 25.7′	22° 50.2′	12159	164	19.8
174	28° 24.0′	22° 49.0′	29524	164	23.3
177	28° 22.1′	22° 45.7′	44524	164	30.6
17701	28° 22.1′	22° 45.7′	47455	164	19.9
17702	28° 22.1′	22° 45.7′	49086	164	19.9
17703	28° 22.1′	22° 45.7′	51066	164	19.9
17704	28° 22.1′	22° 45.7′	52773	164	19.9
17705	28° 22.1′	22° 45.7′	54398	164	19.9
180	28° 21.5′	22° 44.3′	63736	164	33.5
182	28° 10.0′	22° 39.5′	78579	164	53.0
185	28° 15.0′	22° 40.0′	7798	165	46.8
187	28° 20.0′	22° 40.0′	20481	165	42.2
188	28° 27.3′	22° 39.3′	25688	165	38.7
189	28° 30.0′	22° 40.0′	32613	165	36.4
190	28° 35.1′	22° 39.4′	37145	165	37.1
192	28° 35.0′	22° 38.4′	42759	165	39.0
19201	28° 35.0′	22° 38.4′	44836	165	37.5
19202	28° 35.0′	22° 38.4′	46385	165	37.5
19203	28° 35.0′	22° 38.4′	48102	165	37.5
19204	28° 35.0′	22° 38.4′	49867	165	37.5
195	28° 40.0′	22° 40.0′	61275	165	37.2
196	28° 44.6′	22° 39.1′	66831	165	41.2
197	28° 40.1′	22° 42.9′	73968	165	32.1
199	28° 45.0′	22° 44.0′	81945	165	33.8
200	28° 43.5′	22° 46.0′	2108	166	29.6
201	28° 42.0′	22° 48.0′	6509	166	25.3
202	28° 39.6′	22° 50.1′	10803	166	20.1
203	28° 38.3′	22° 52.0′	15120	166	16.2
204	28° 37.1′	22° 53.9′	21635	166	12.5
206	28° 36.0′	22° 56.0′	32674	166	8.8
209	28° 34.5′	22° 58.0′	43337	166	5.2
211	28° 33.2′	23° 1.0′	56106	166	5.3
213	28° 31.5′	23° 2.8′	67437	166	7.5
215	28° 29.5′	23° 4.2′	75674	166	10.2
217	28° 28.5′	23° 6.0′	85329	166	13.8
219	28° 26.3′	23° 10.1′	7430	167	22.0
221	28° 22.9′	23° 13.6′	21729	167	29.7
224	28° 22.5′	23° 14.8′	35508	167	32.0
228	28° 25.2′	23° 11.4′	54333	167	24.7
230	28° 20.0′	23° 12.0′	82013	167	33.8
231	28° 25.0′	23° 12.0′	3705	168	27.6
232	28° 30.0′	23° 12.0′	9909	168	23.6
233	28° 35.0′	23° 12.1′	15086	168	23.3

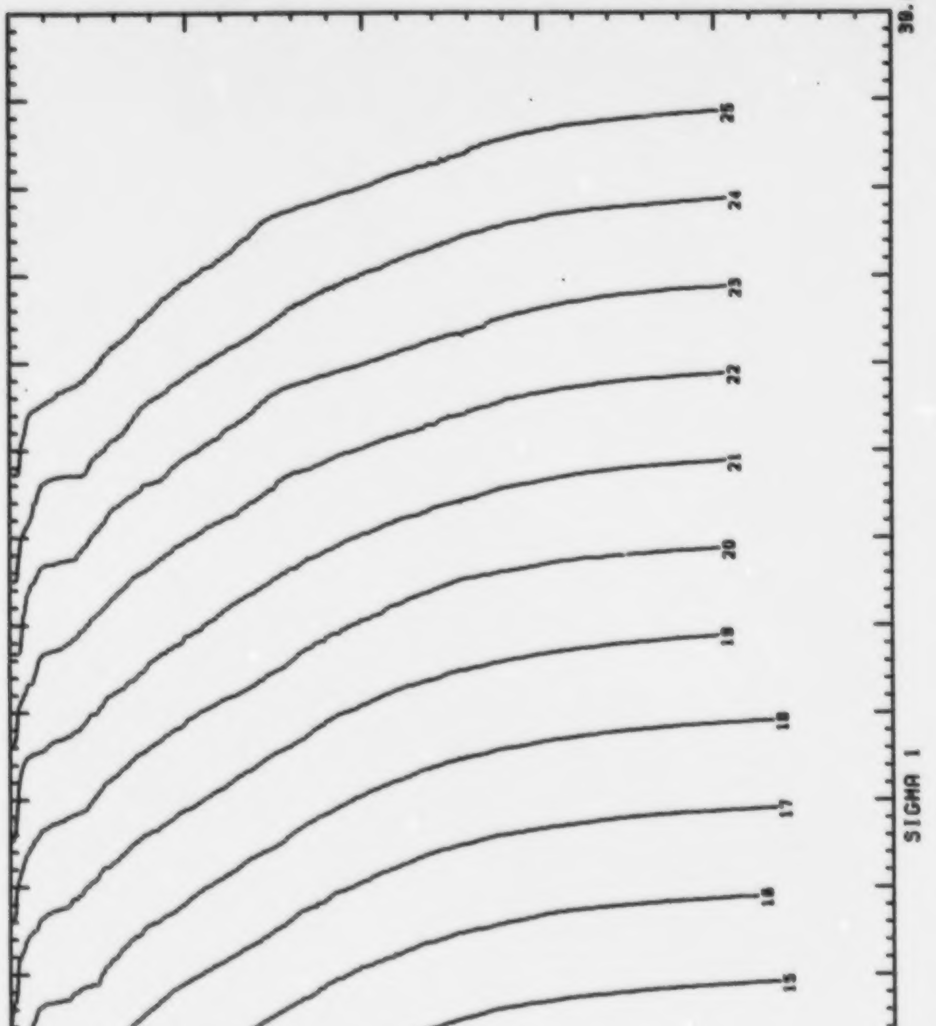
STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
234	28° 40.0′	23° 11.5′	23093	168	25.9
235	28° 45.3′	23° 11.9′	28444	168	32.7
236	28° 44.6′	23° 4.6′	33785	168	28.4
238	28° 45.0′	22° 55.0′	44713	168	32.3
239	28° 42.5′	22° 52.8′	50382	168	29.5
240	28° 40.3′	22° 54.7′	54641	168	23.7
243	28° 38.2′	22° 55.5′	64991	168	19.1
246	28° 36.0′	22° 55.0′	75594	168	15.4
249	28° 38.0′	22° 50.0′	1350	169	24.5
251	28° 37.0′	22° 48.3′	11418	169	25.1
253	28° 37.4′	22° 43.9′	20950	169	32.0
255	28° 38.0′	22° 41.0′	31318	169	37.1
258	28° 34.0′	22° 45.0′	42966	169	25.8
262	28° 28.5′	22° 45.5′	64119	169	19.9
264	28° 27.1′	22° 46.4′	75982	169	17.8
266	28° 23.0′	22° 49.0′	85043	169	15.1
267	28° 18.8′	22° 55.1′	4119	170	18.4
272	28° 32.9′	22° 52.0′	44007	170	13.8
275	28° 20.0′	23° 3.0′	58753	170	21.7
277	28° 27.1′	23° 9.5′	72822	170	21.4
279	28° 37.0′	23° 10.0′	26	171	21.5
280	28° 42.0′	23° 3.0′	6342	171	23.6
281	28° 46.1′	23° 10.3′	16658	171	32.8
283	28° 50.0′	23° 13.0′	27564	171	40.2
285	28° 57.3′	23° 21.3′	36300	171	55.9
287	32° 13.7′	26° 25.8′	36416	172	—
290	39° 10.7′	33° 27.5′	39963	174	—

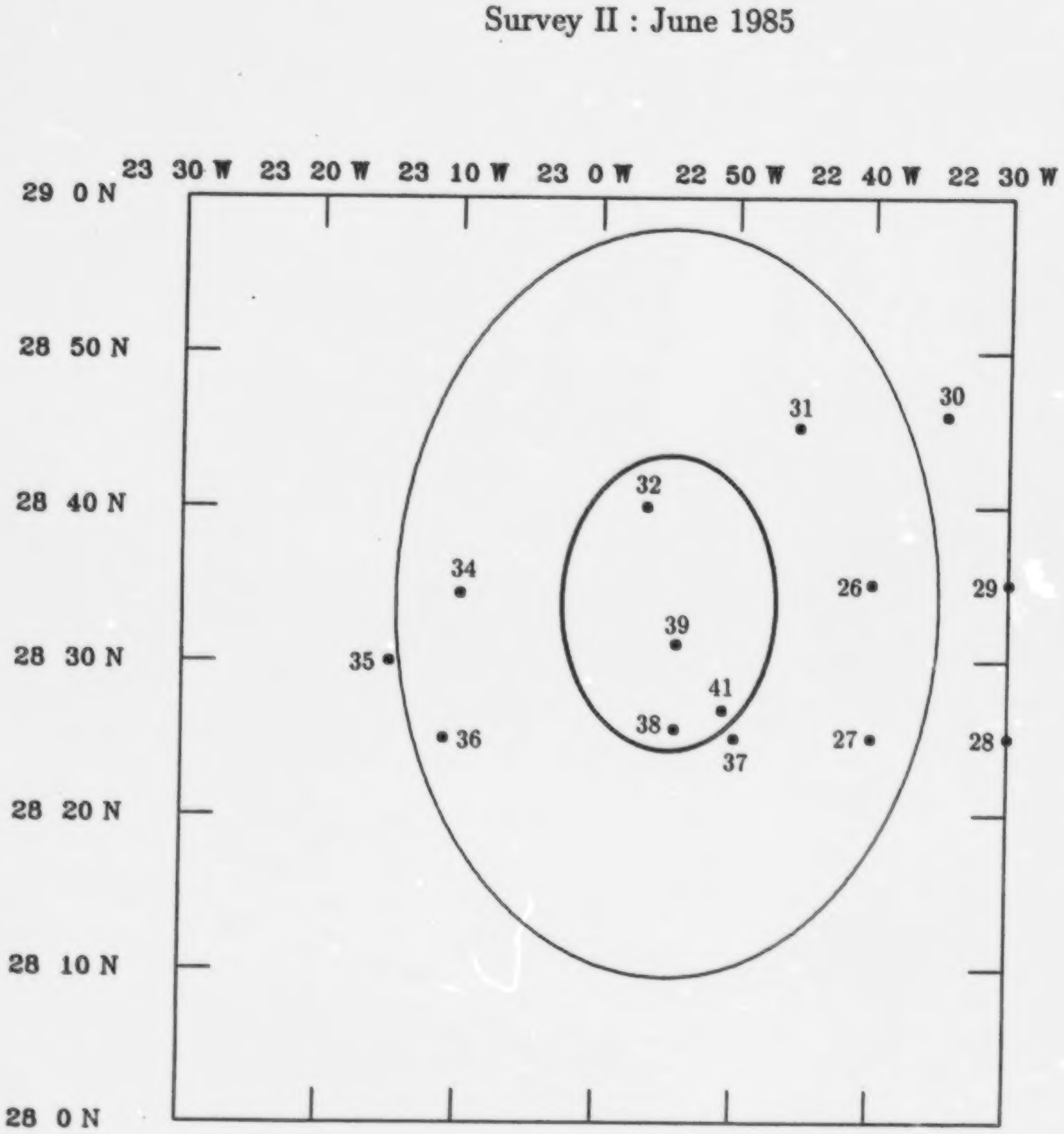
Survey II : June 1985

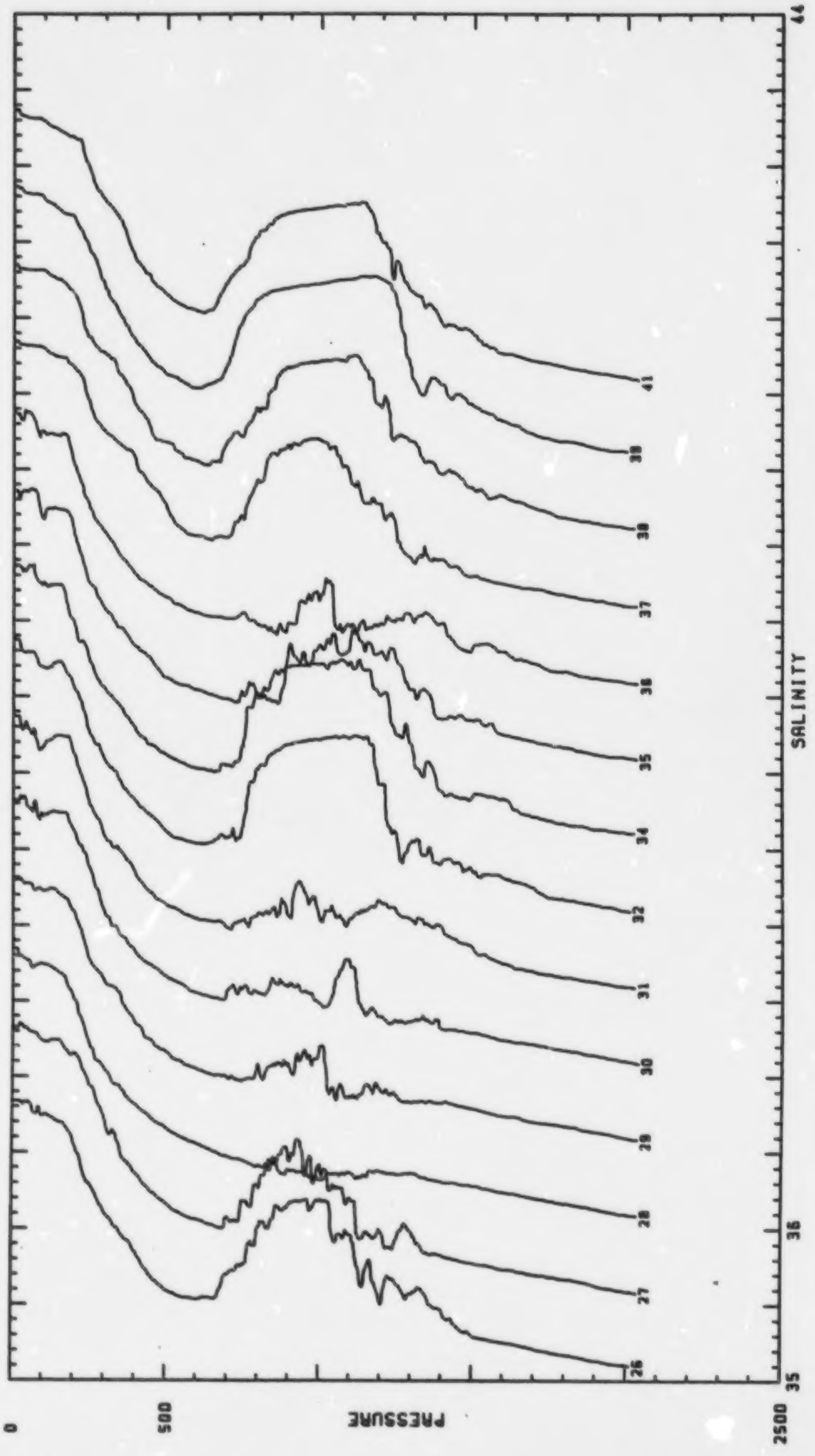


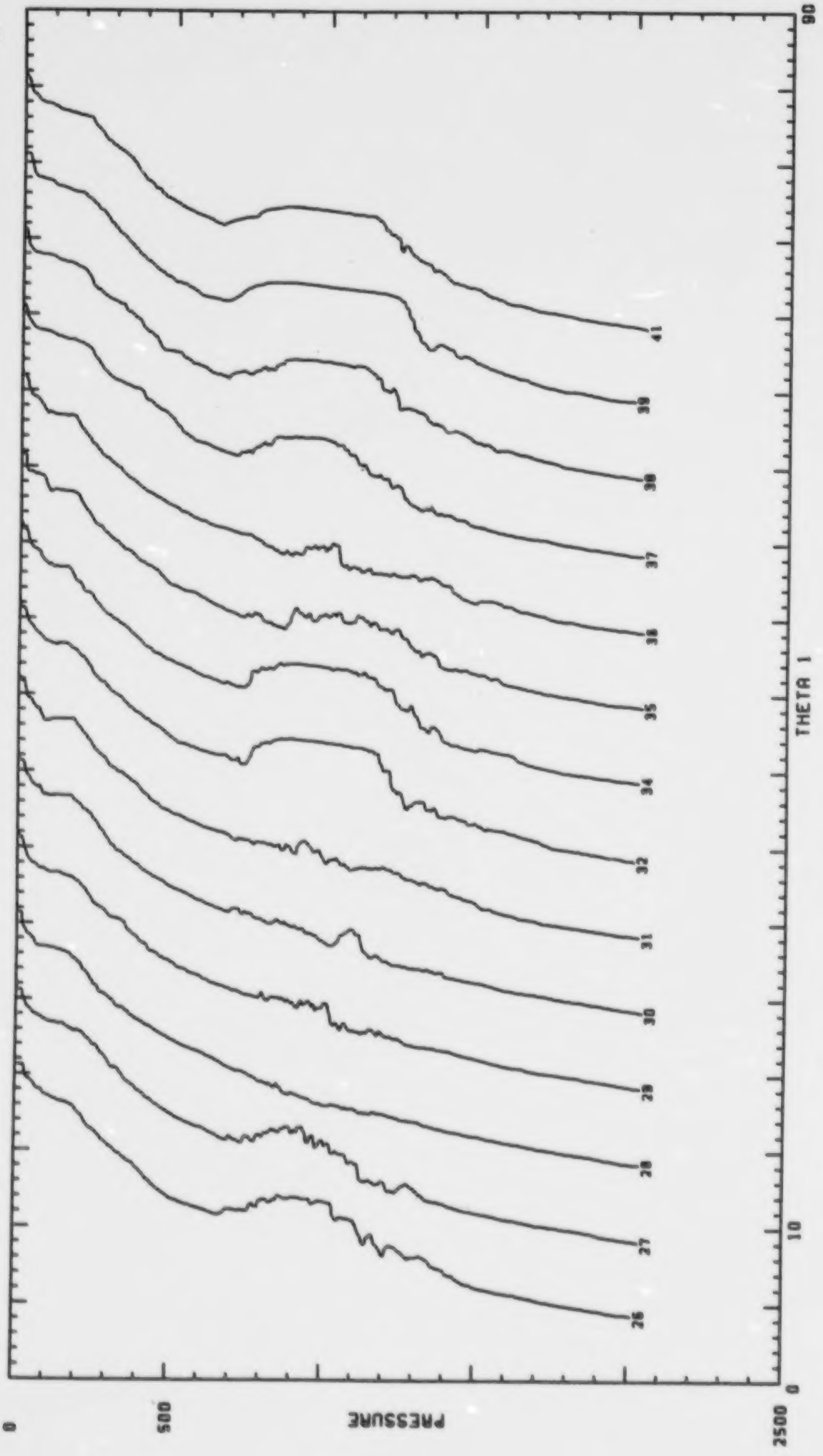

PRESSURE
0
500
2500
SALINITY
35
36
44
12
13
15
16
17
18
19
20
21
22
23
24
25

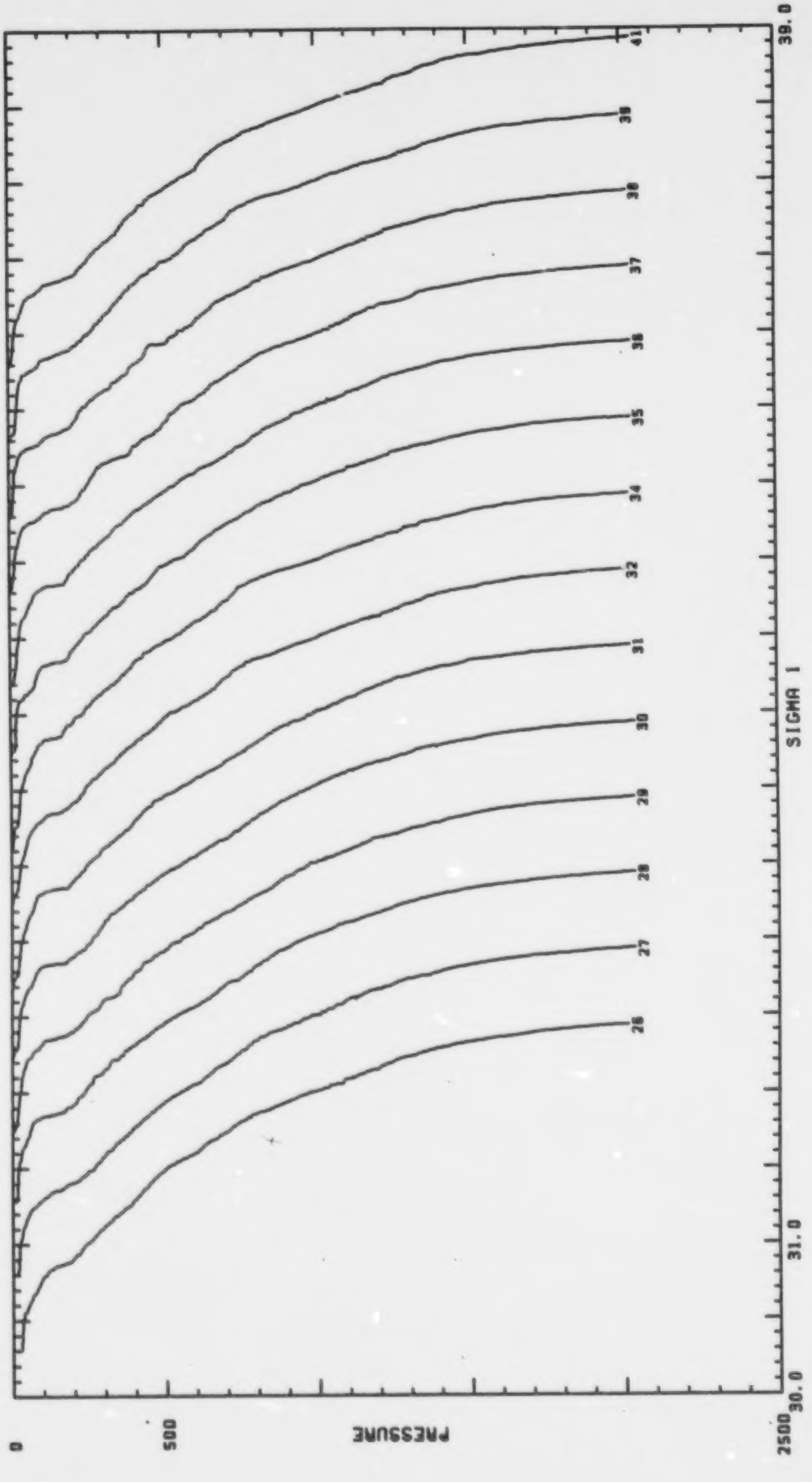

PRESSURE
0
500
2500
THETA 1
0
10
90
12
13
15
16
17
18
19
20
21
22
23
24
25


PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
30.0
12
13
15
17
20
21
22
23
24

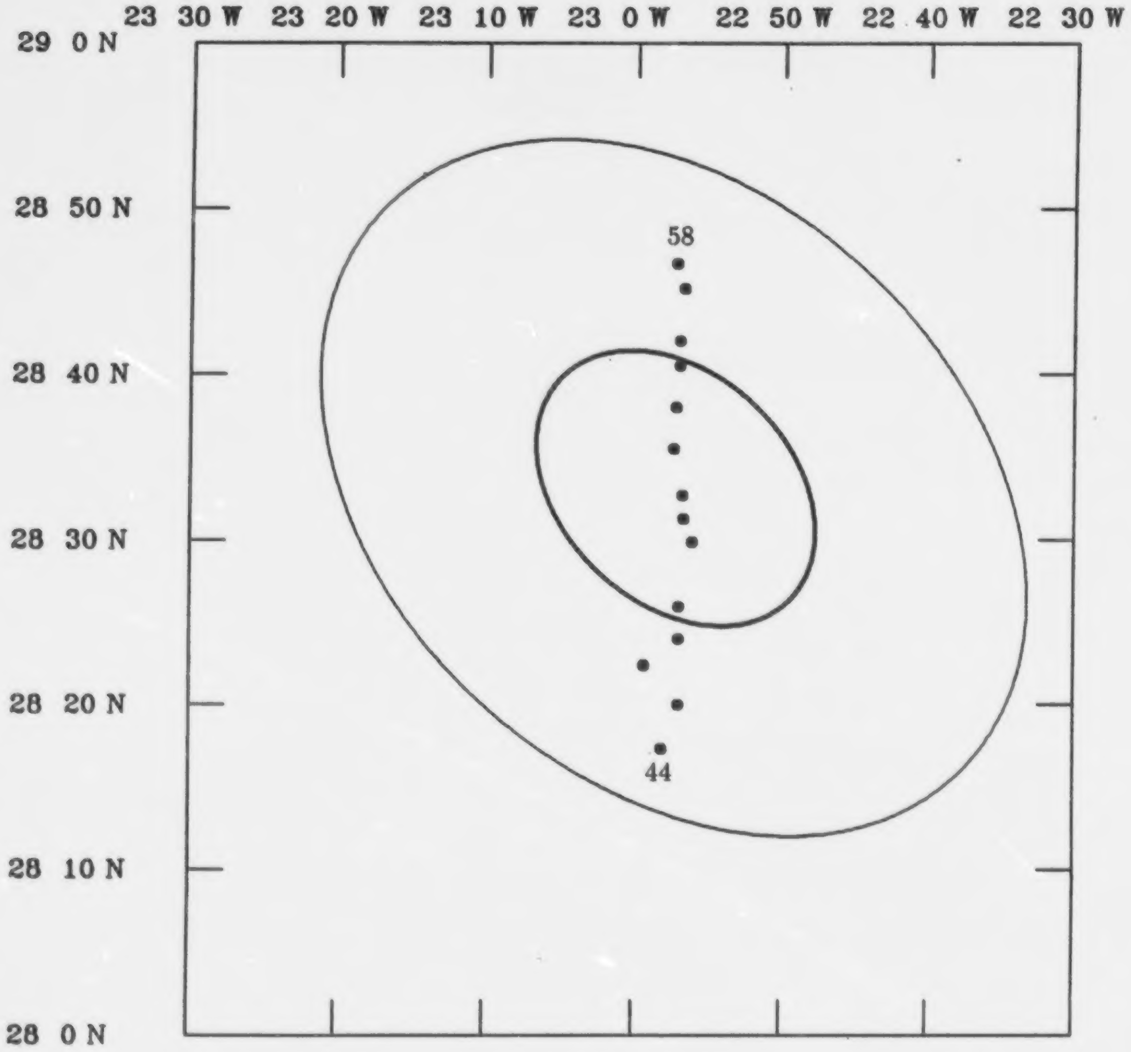

Survey II : June 1985
23 30 W
23 20 W
23 10 W
23 0 W
22 50 W
22 40 W
22 30 W
29 0 N
28 50 N
28 40 N
28 30 N
28 20 N
28 10 N
28 0 N
30
31
32
34
26
29
39
35
41
38
36
37
27
28

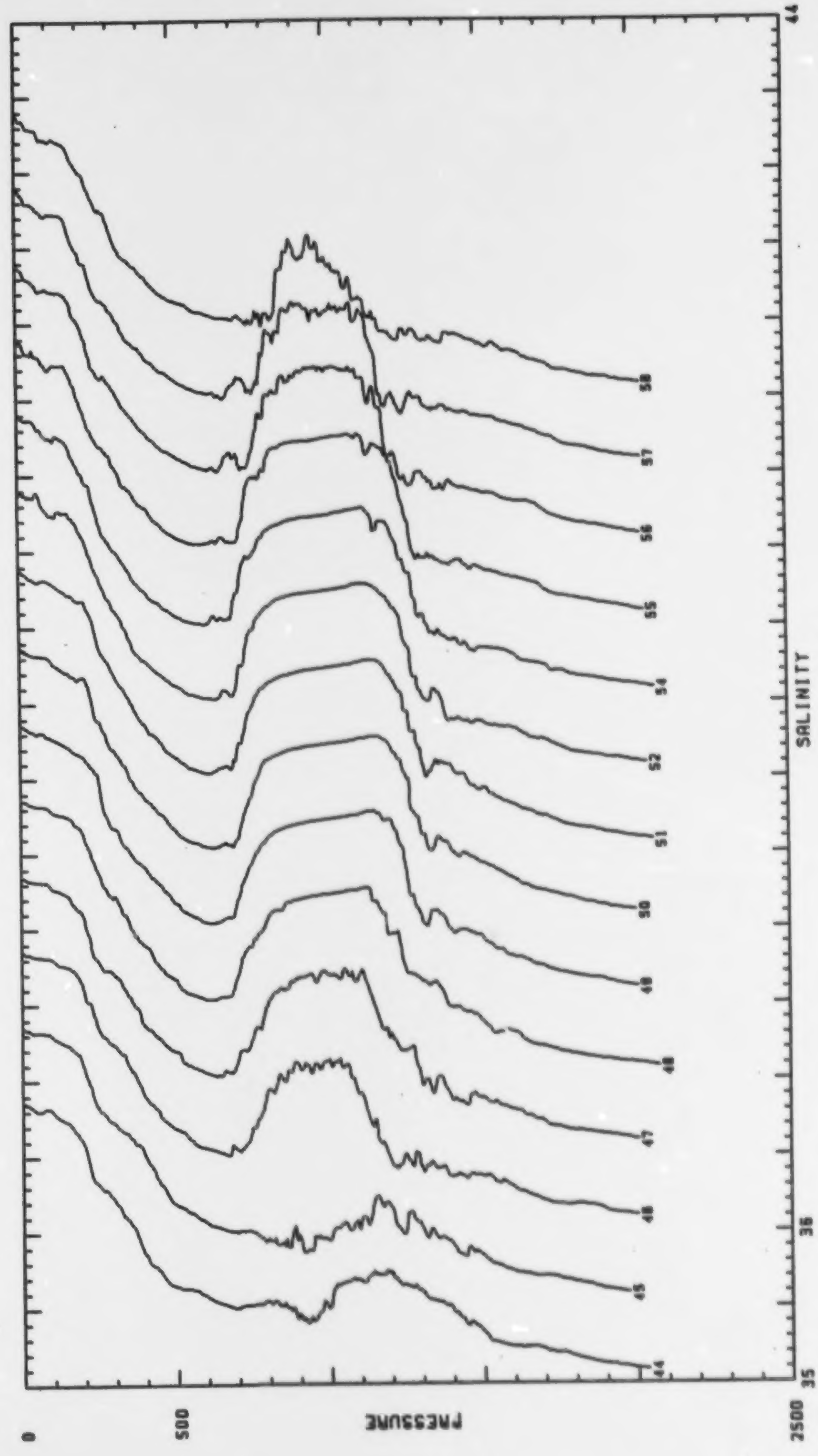

PRESSURE
0
500
2500
SALINITY
35
36
44
41
39
38
37
36
35
34
32
31
30
29
28
27
26

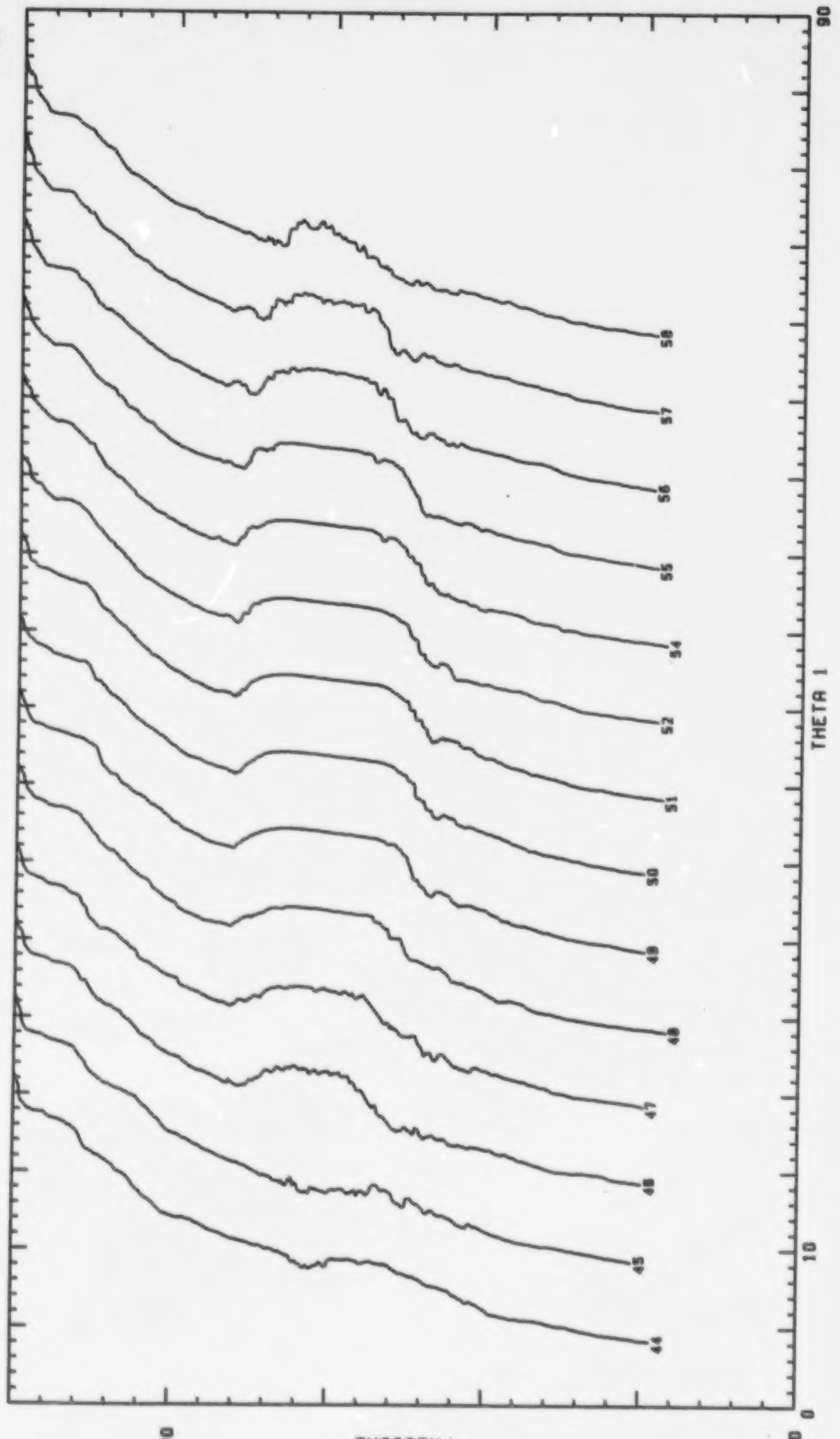

PRESSURE
0
500
2500
THETA 1
0
10
90
26
27
28
29
30
31
32
34
35
36
37
38
39
41

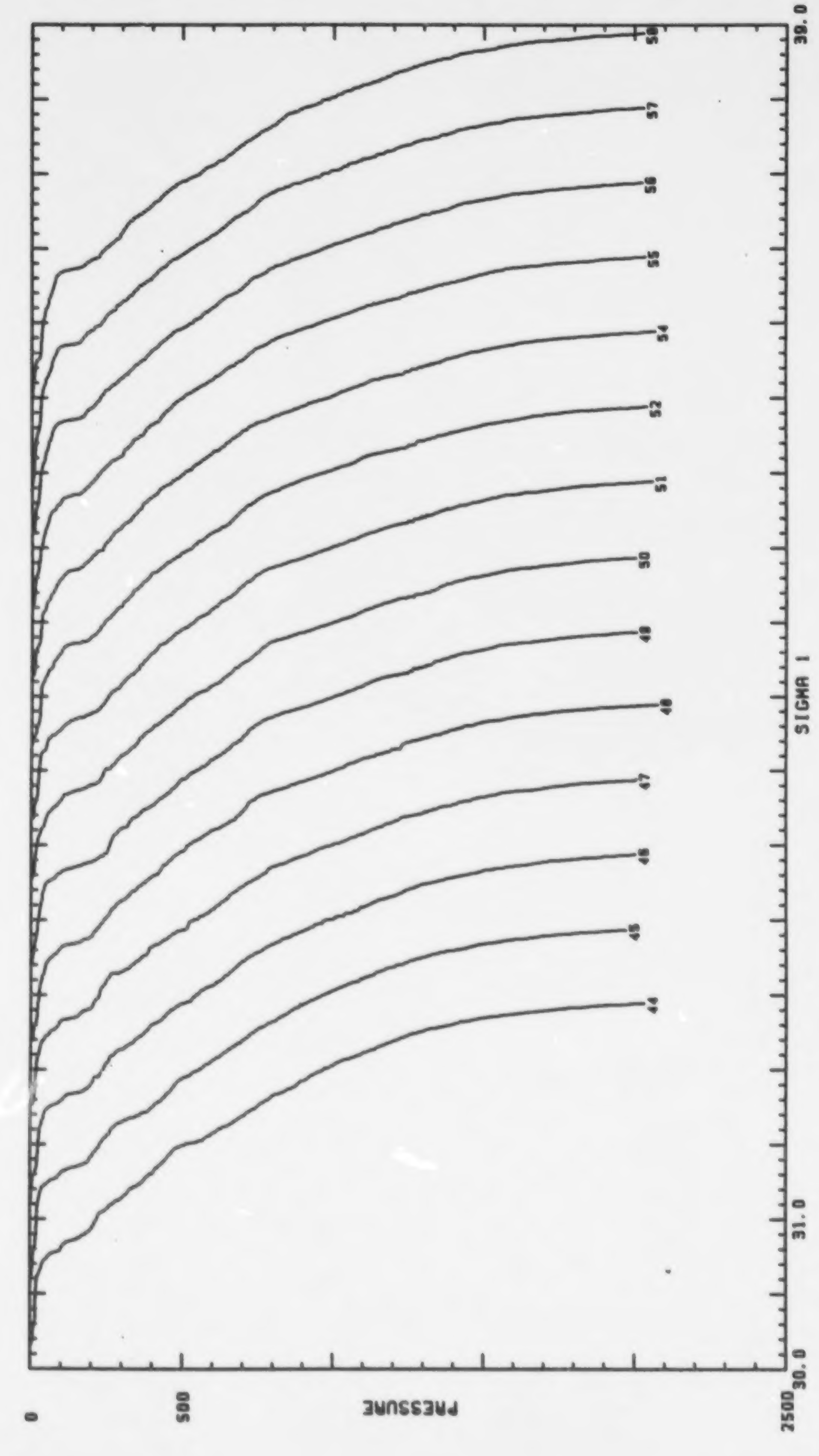

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
26
27
28
29
30
31
32
34
35
36
37
41

Survey II : June 1985

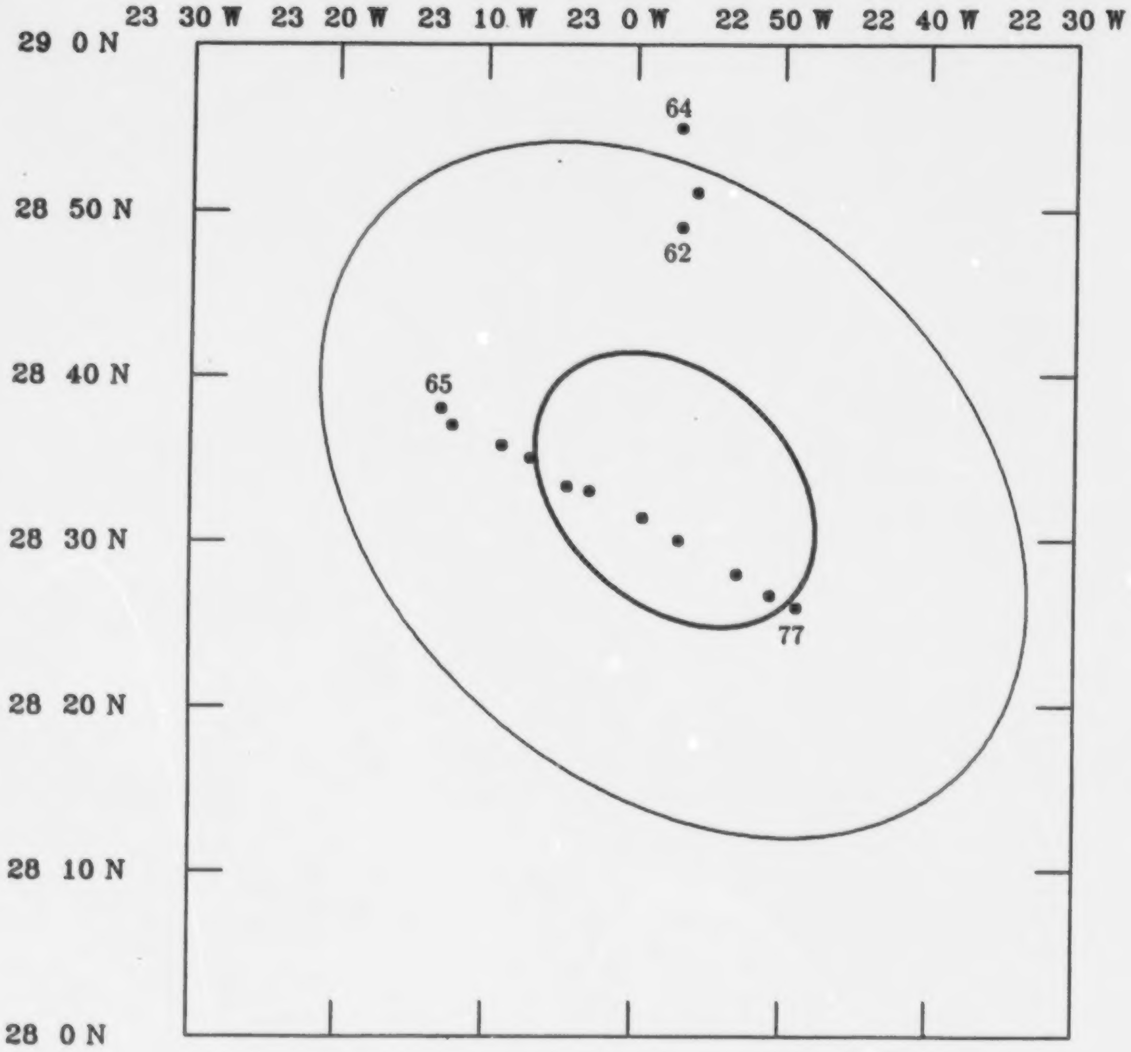


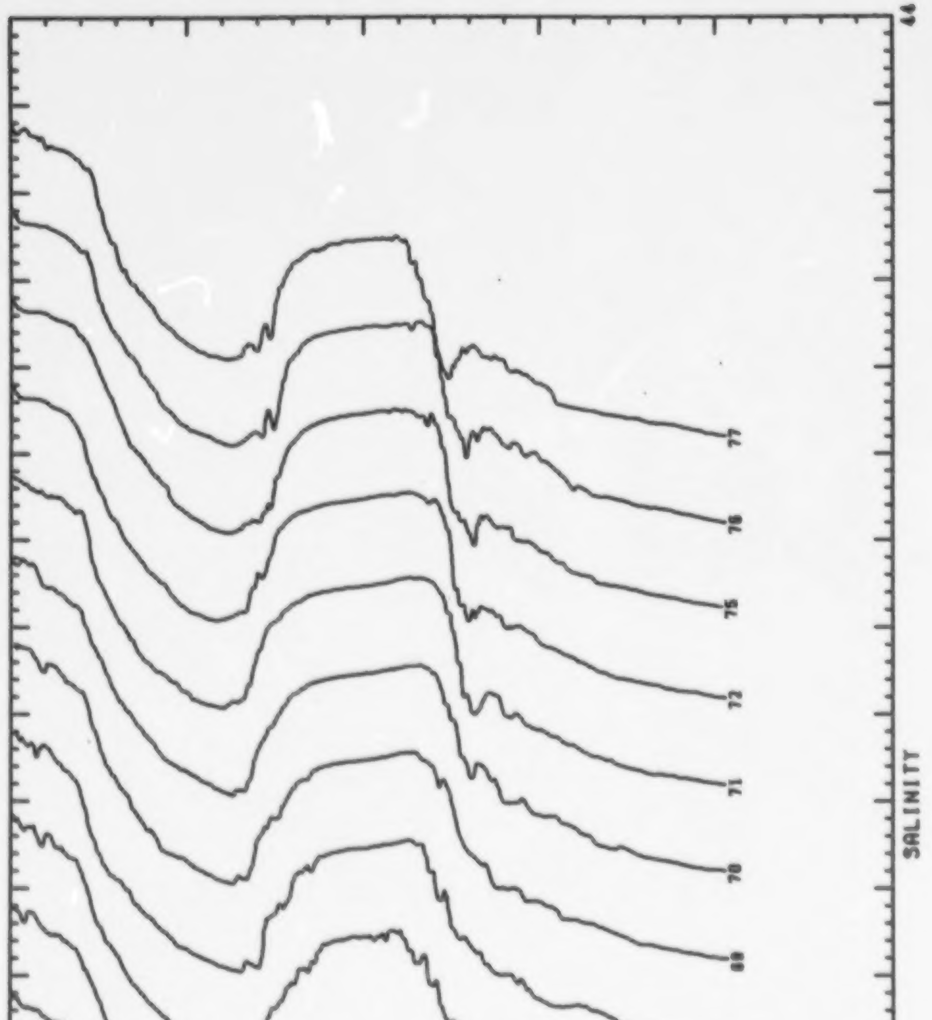

PRESSURE
0
500
2500
SALINITY
35
36
44
58
57
56
55
54
52
51
50
47
45
44

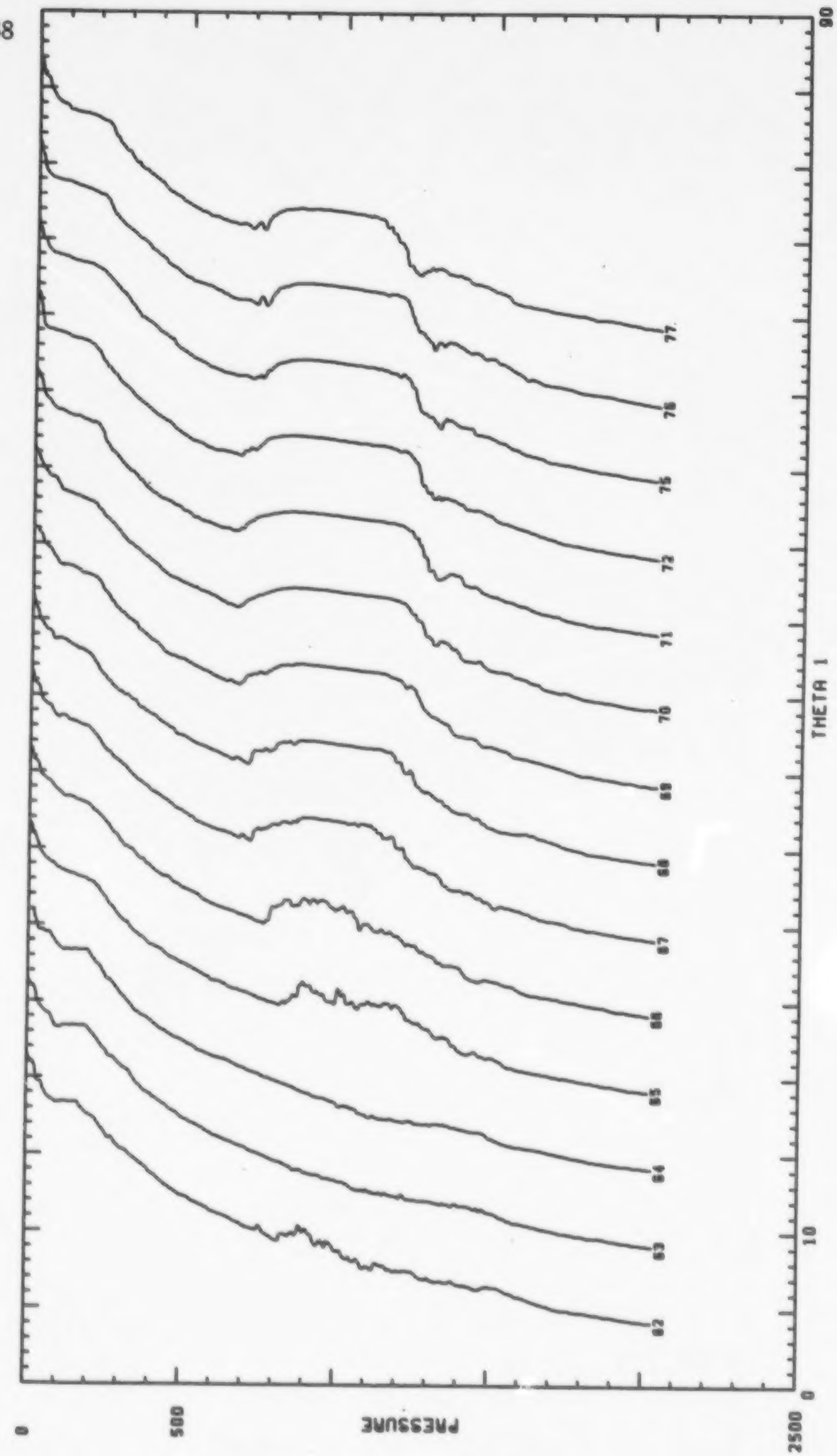

PRESSURE
0
500
2500
THETA 1
0
10
90
44
45
46
47
48
49
50
51
52
54
55
56
57
58

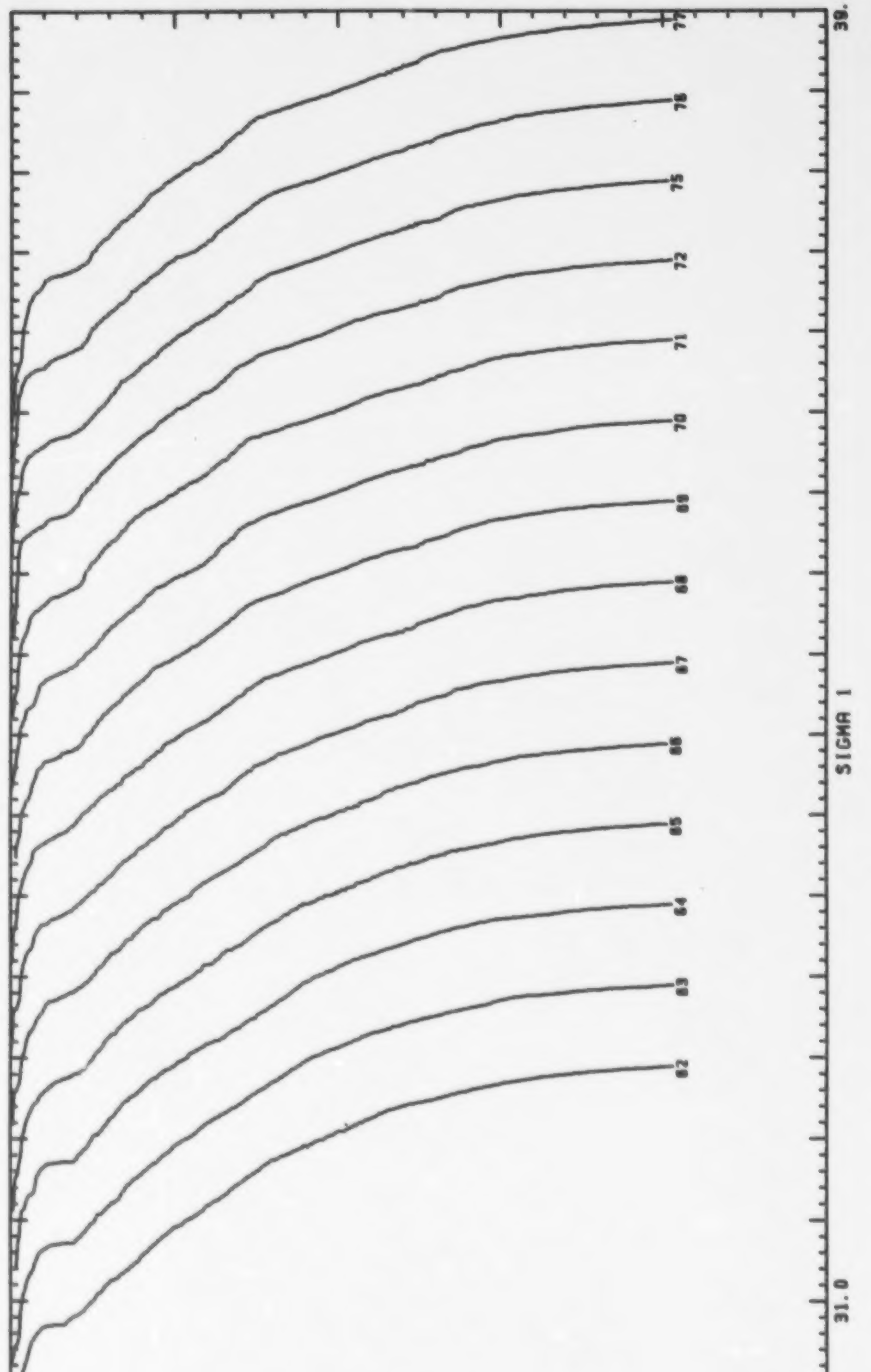

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
30.0
58
57
56
55
54
52
51
50
49
48
47
46
45
44

Survey II : June 1985

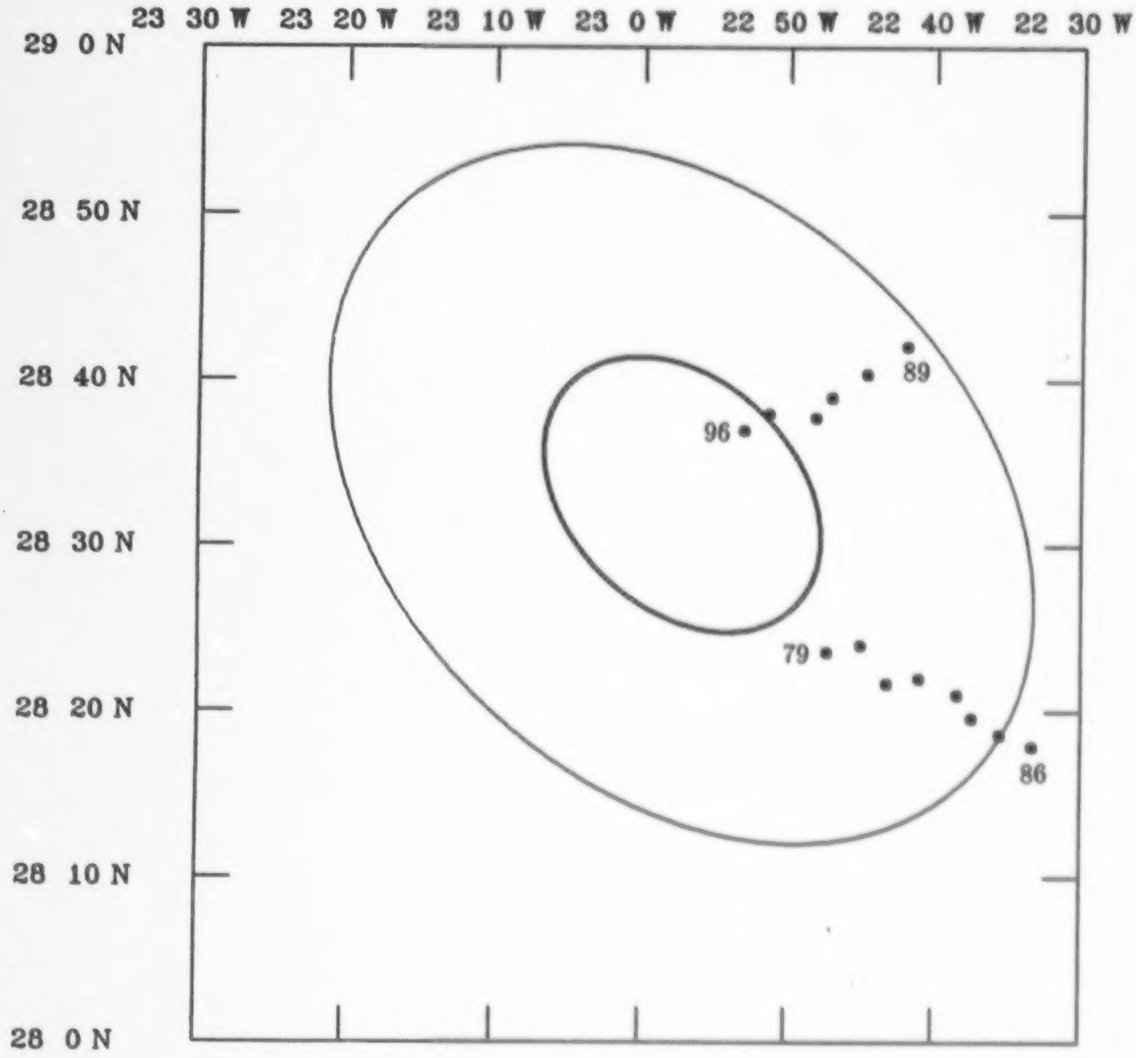


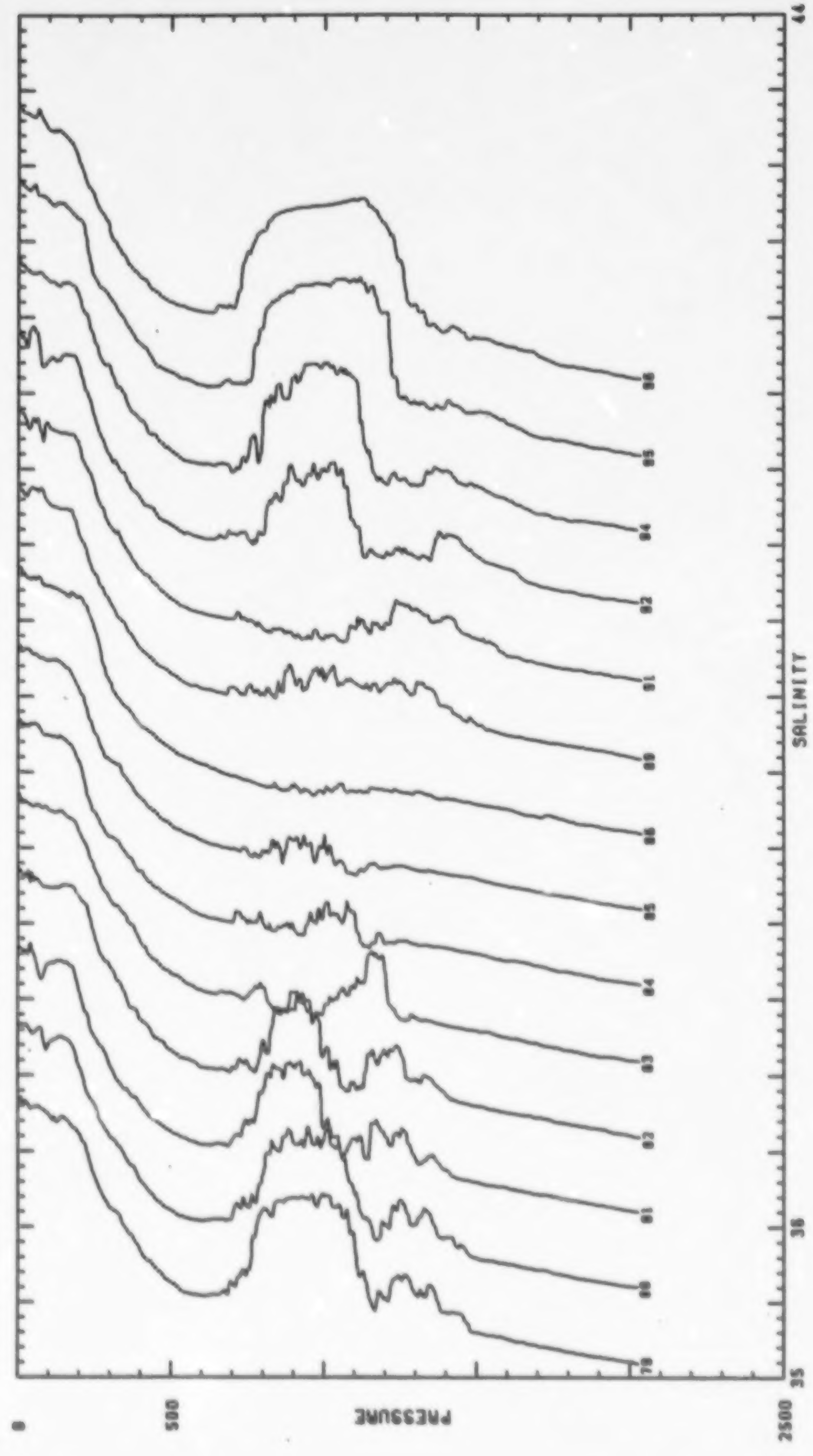

PRESSURE
0
500
2500
SALINITY
35
38
44


PRESSURE
0
500
2500
THETA 1
0
10
90
77
76
75
72
71
70
69
68
67
66
65
64
63
62

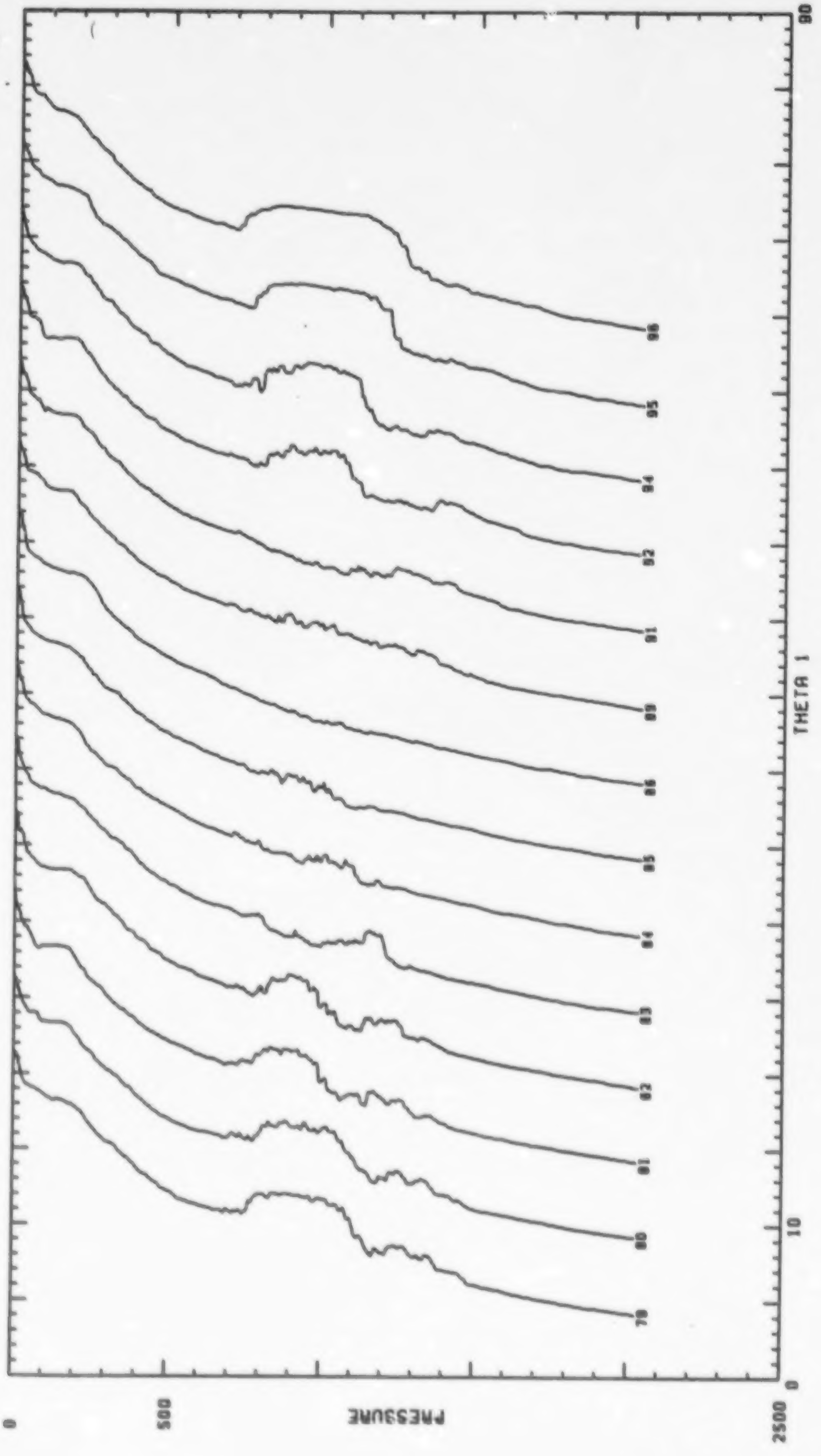

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
77
76
75
72
71
70
69
68
67
66
65
64
63
62

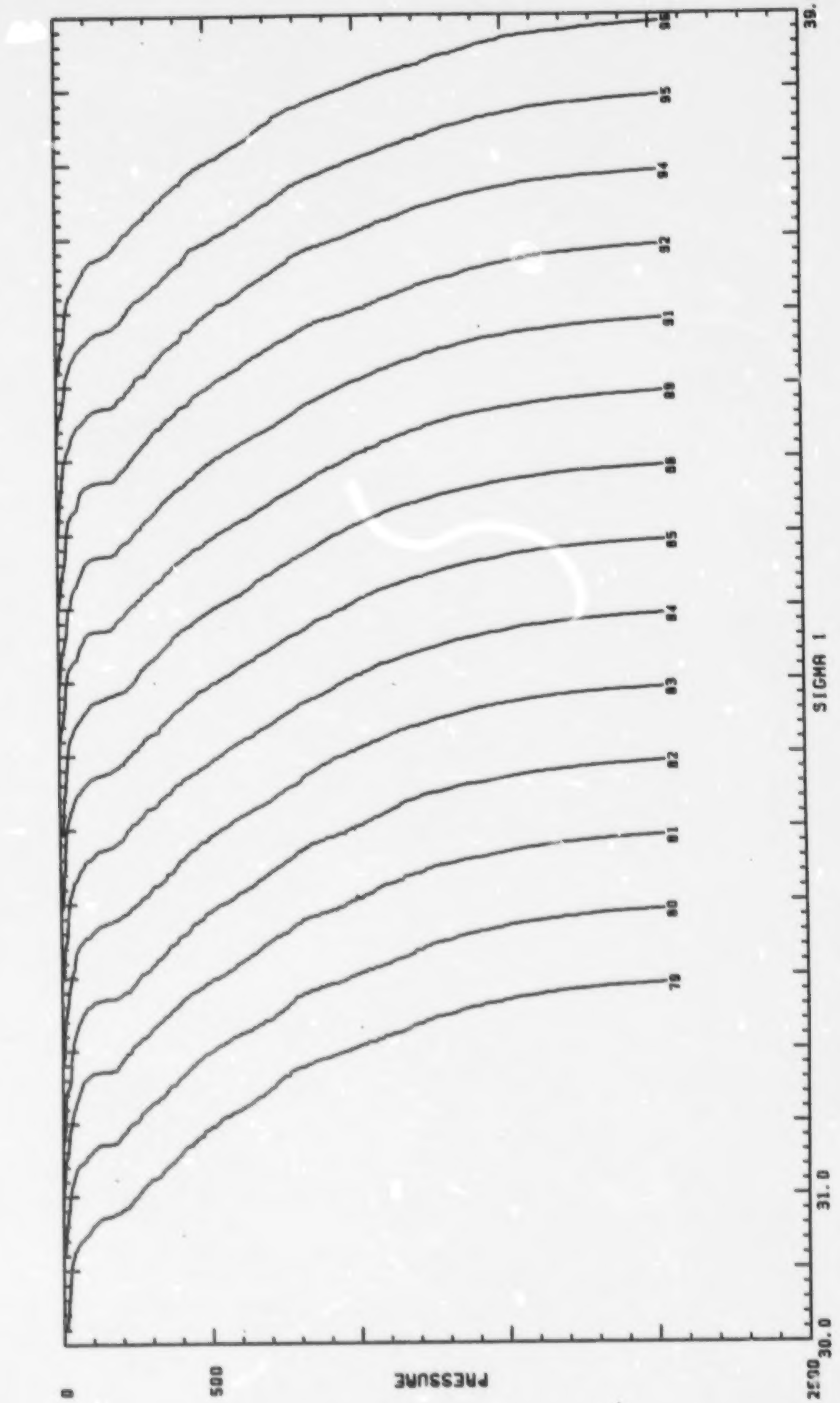
Survey II : June 1985



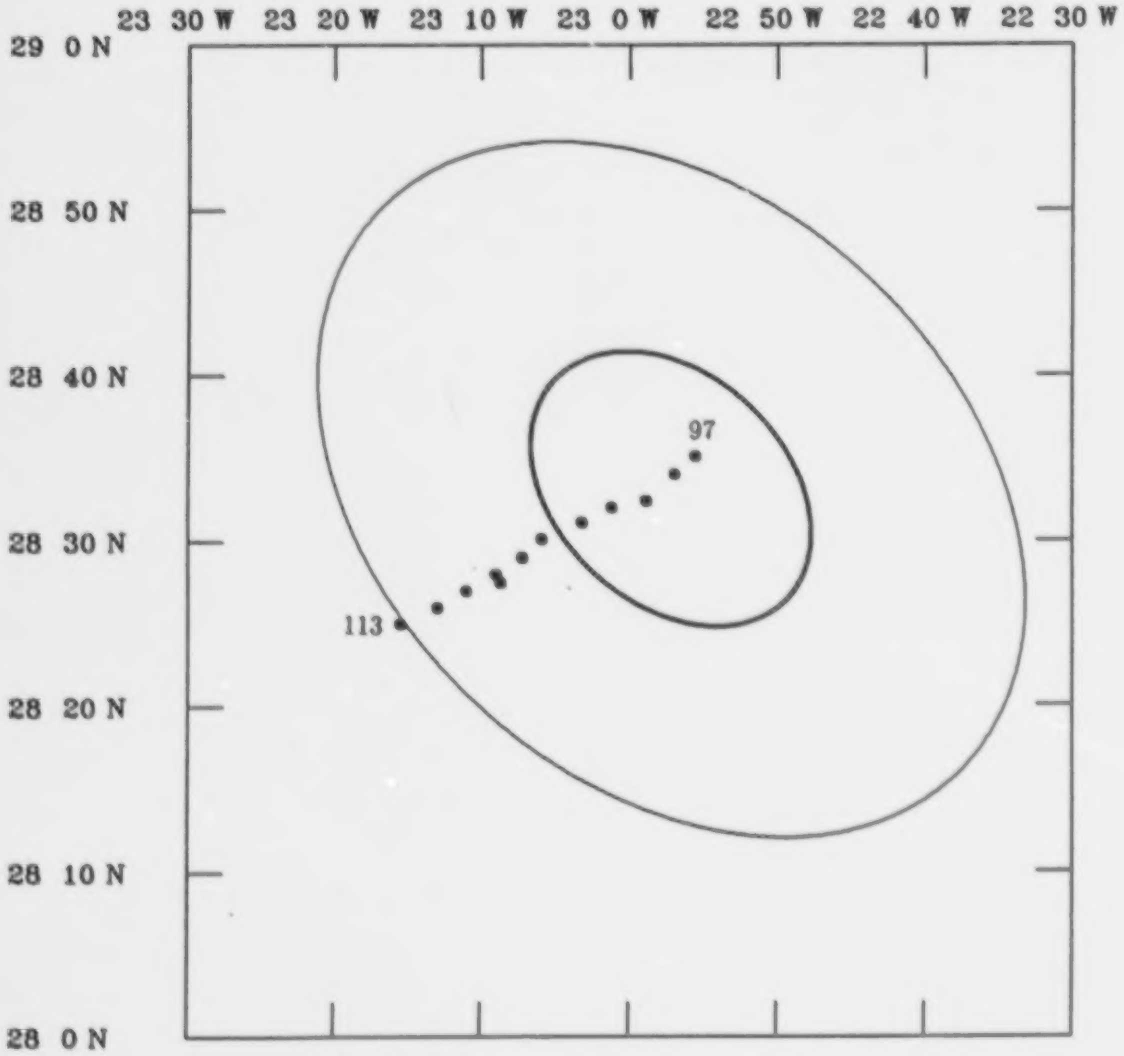


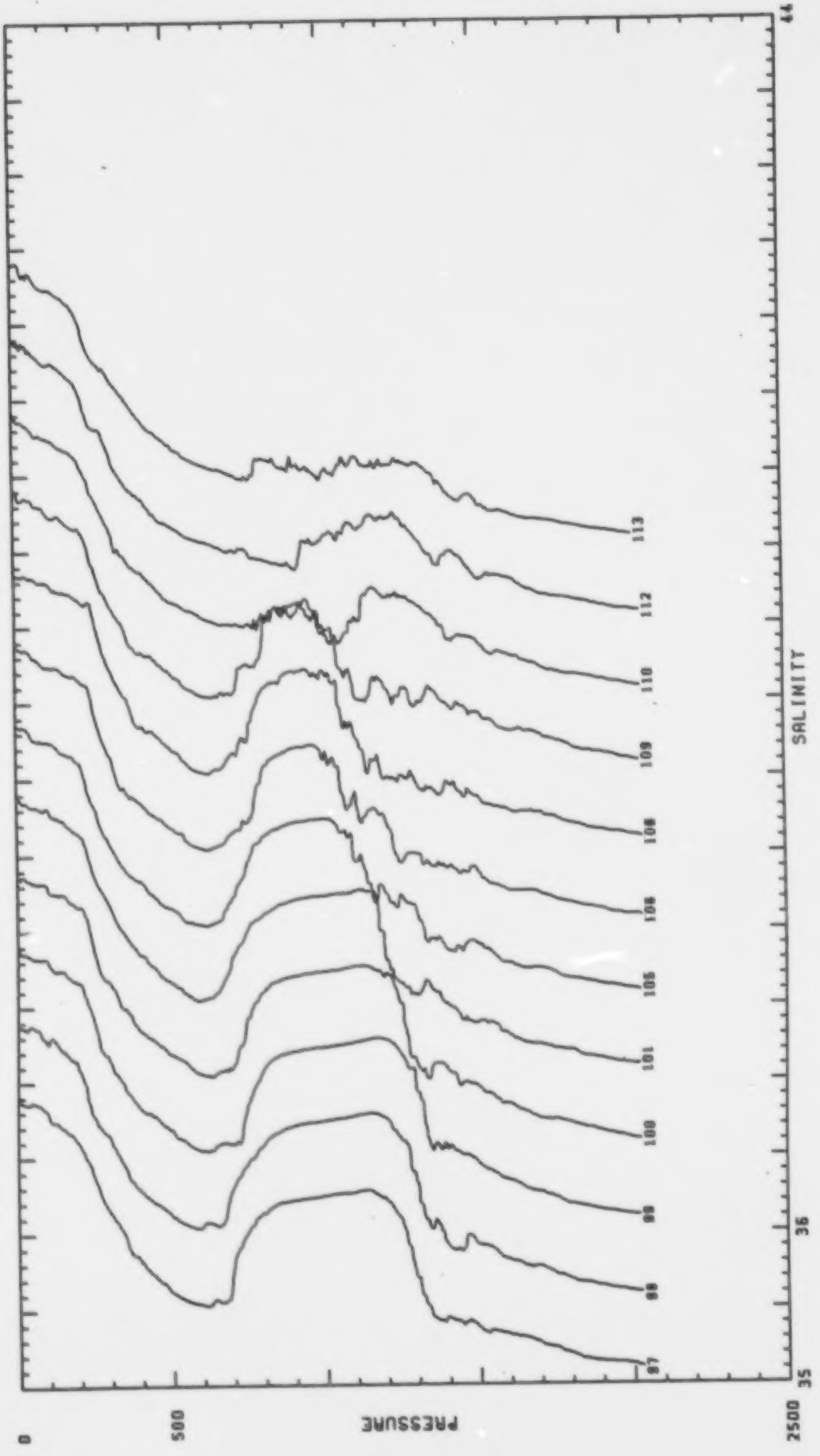
PRESSURE
0
500
2500
SALINITY
35
38
44

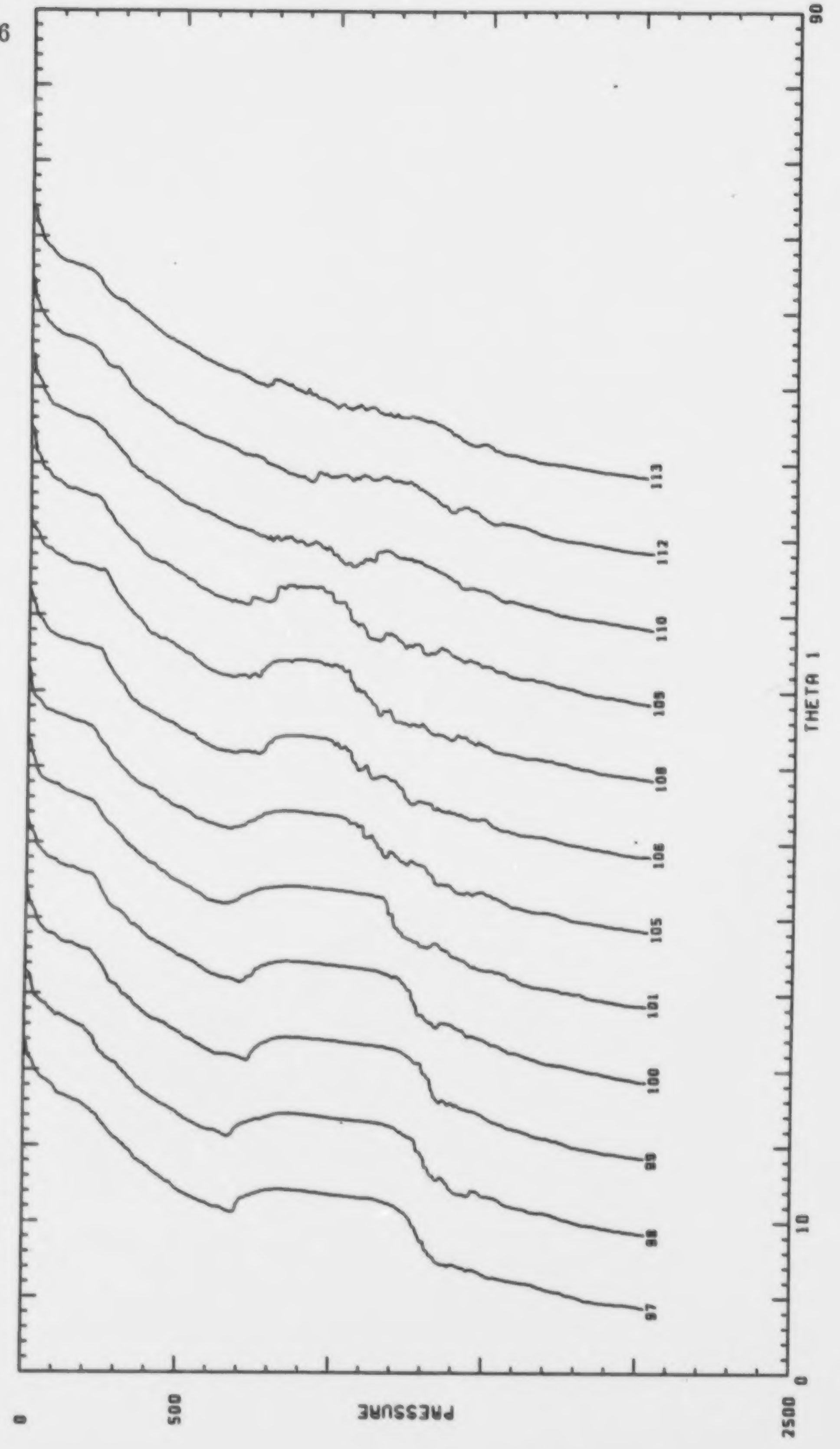

PRESSURE
0
500
2500
THETA 1
0
10
90

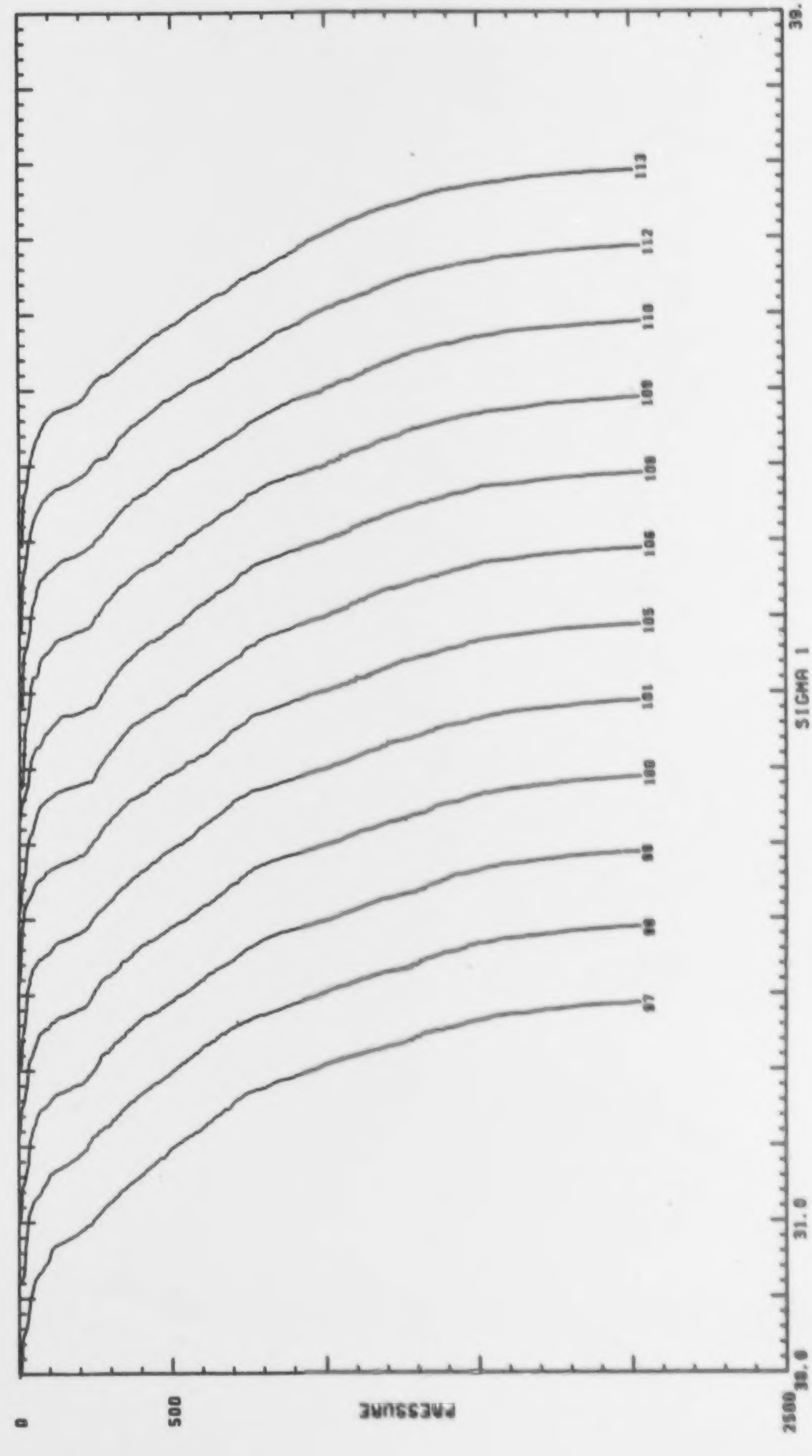

PRESSURE
0
500
SIGMA 1
30.0
31.0
39.0

Survey II : June 1985

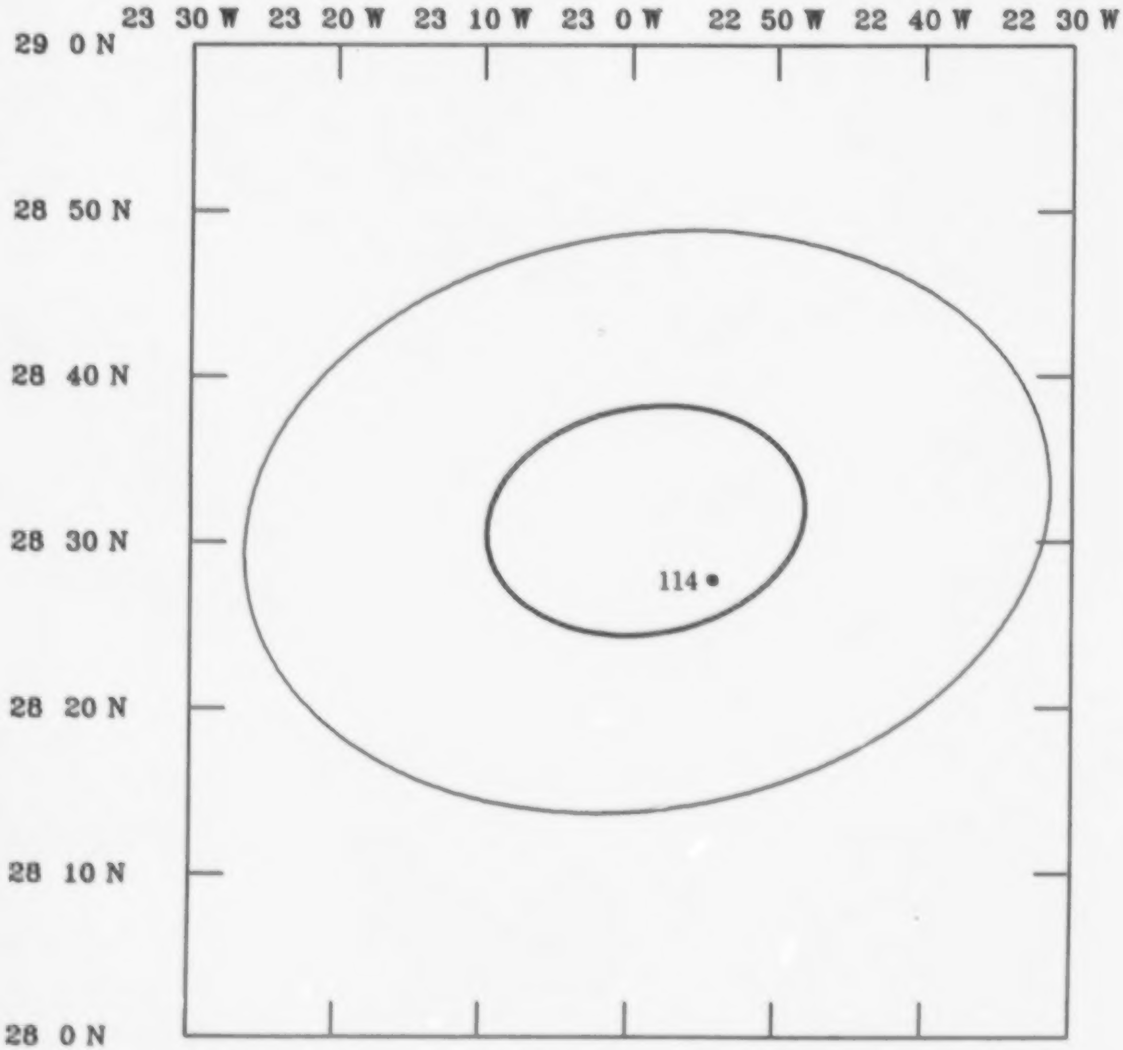


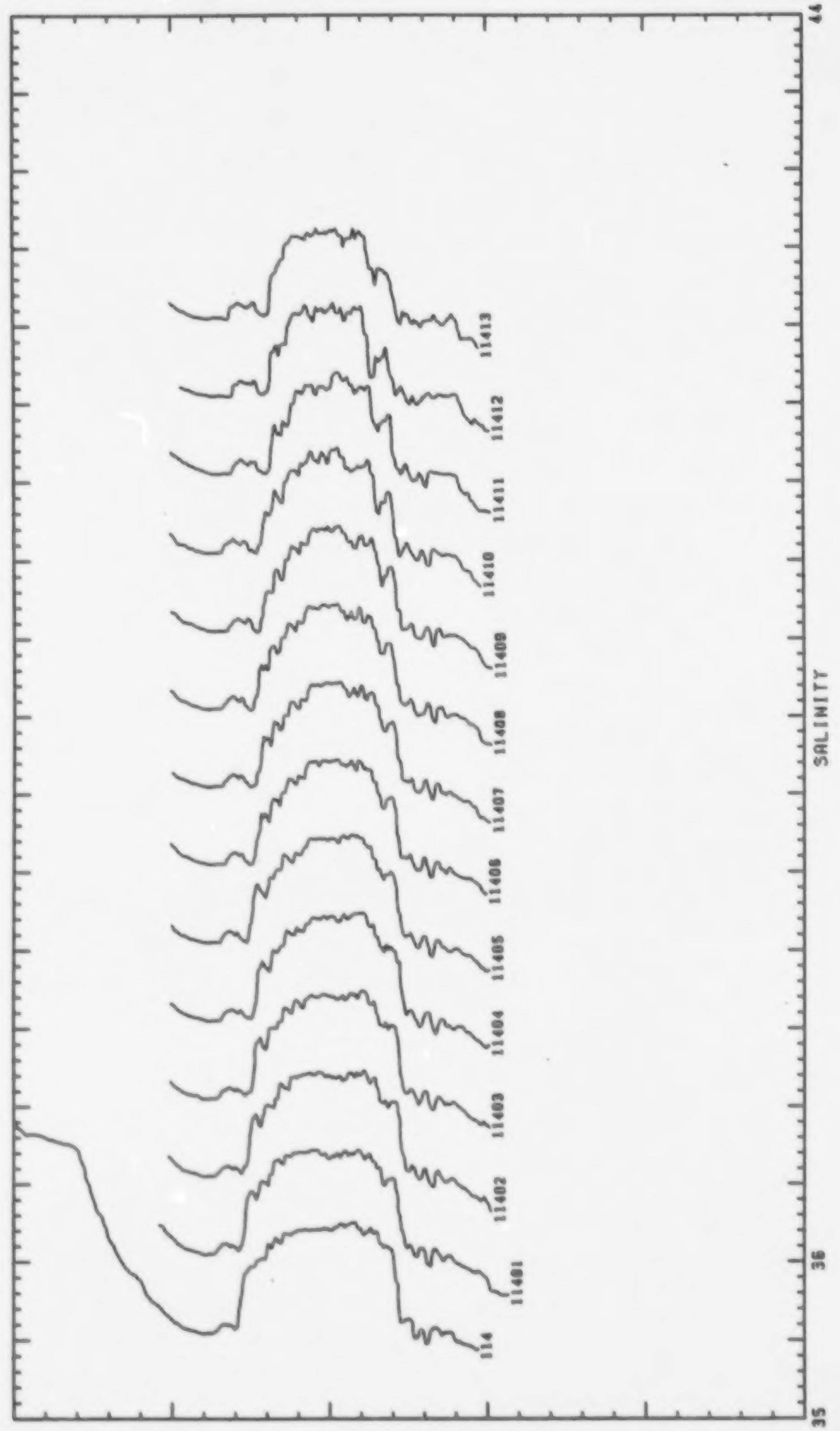

PRESSURE
0
500
2500
SALINITY
35
36
44
113
112
110
109
108
105
101
100
97

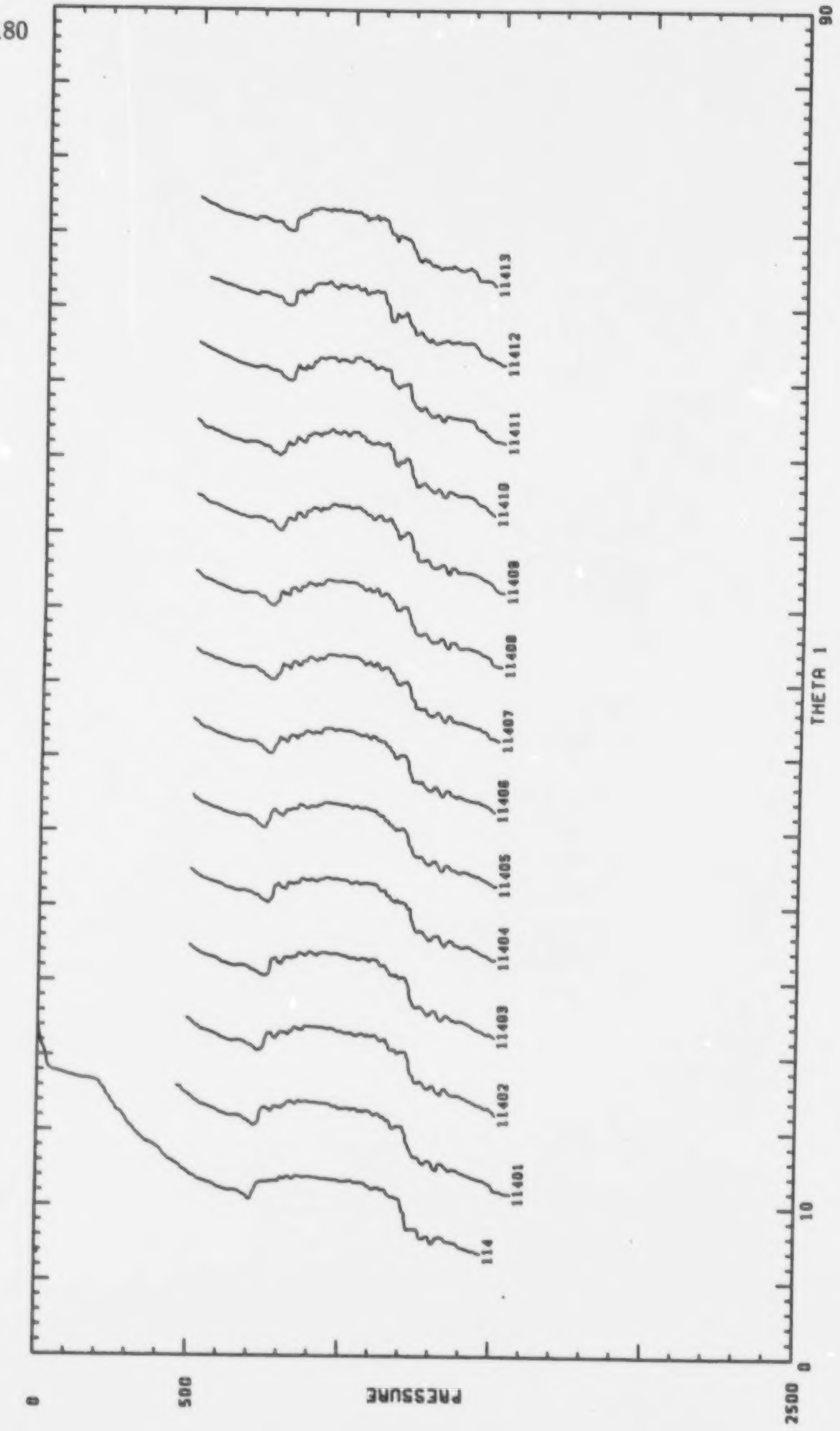

PRESSURE
0
500
2500
THETA 1
0
10
90
97
98
99
100
101
105
106
108
109
110
112
113

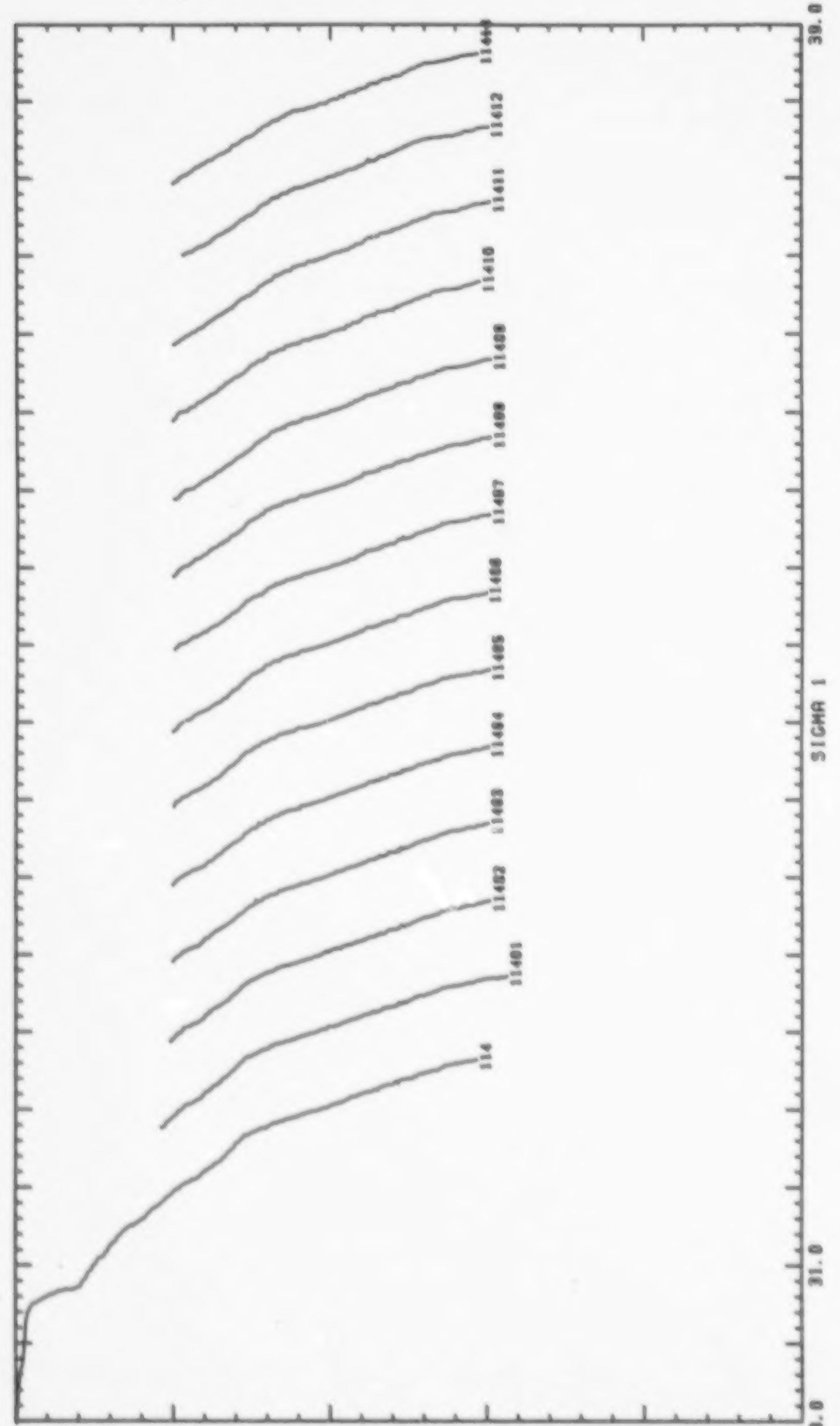

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
113
112
110
109
108
106
105
101
100
97

Survey II : June 1985

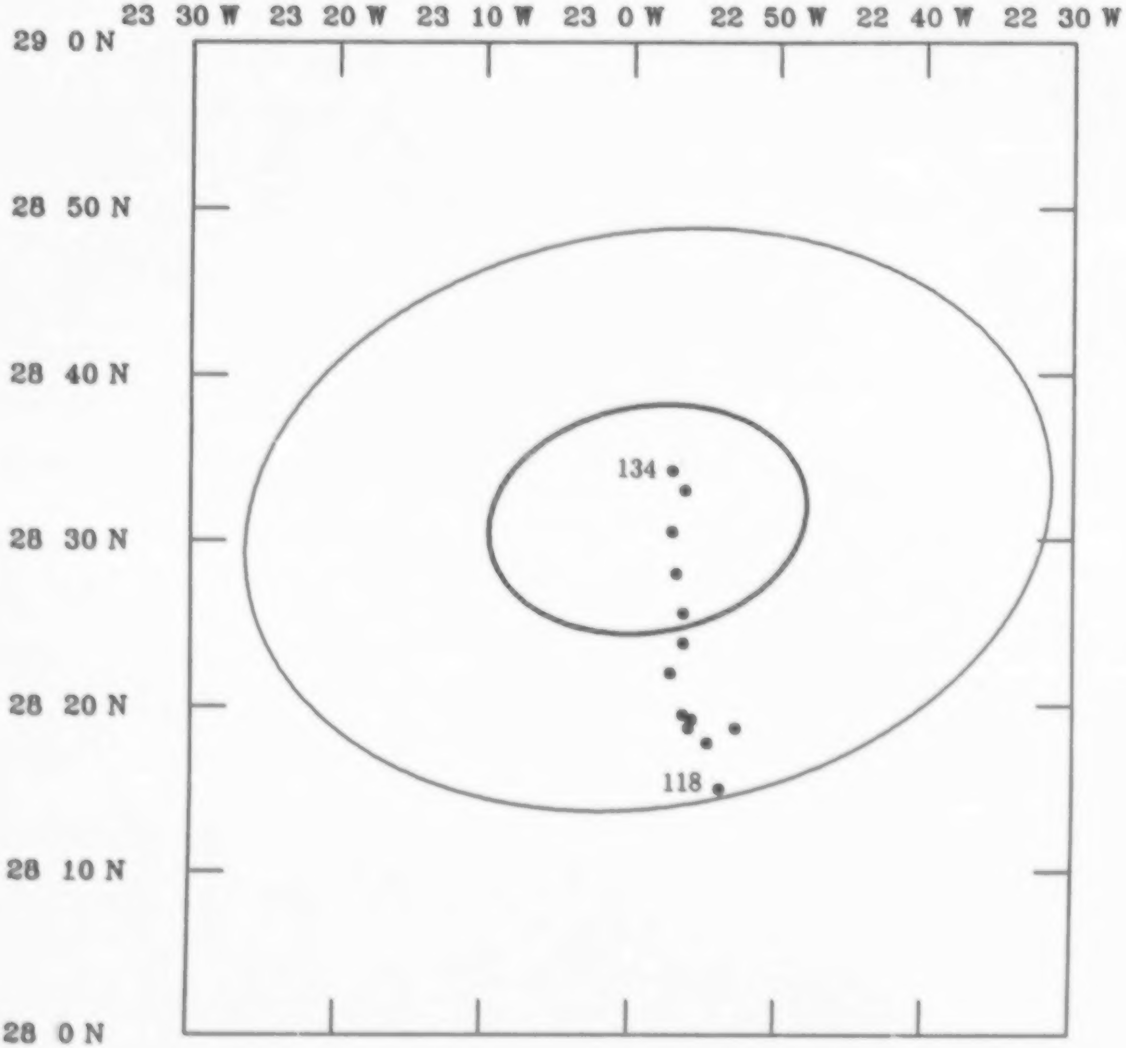


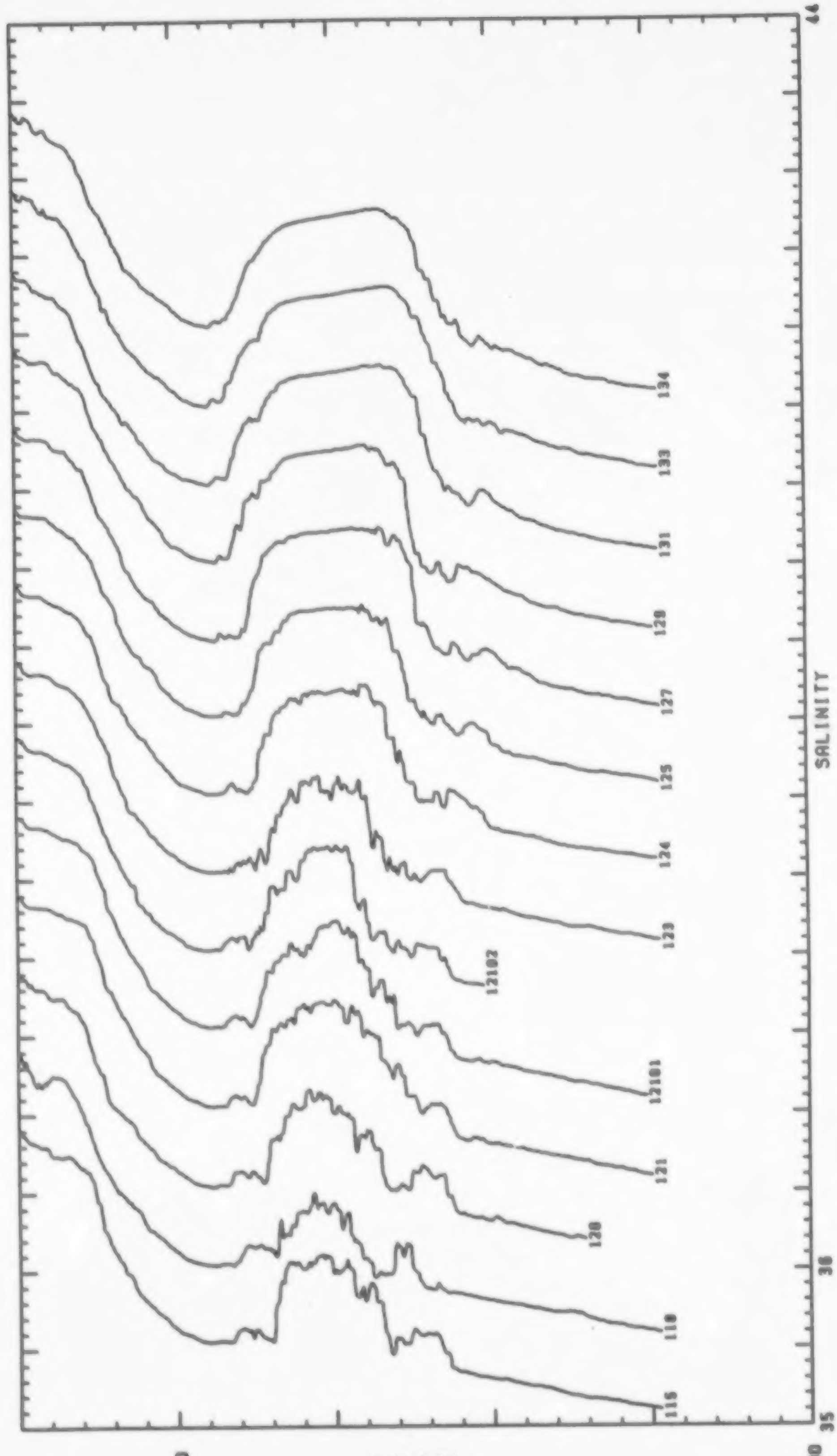

PRESSURE
0
500
2500
SALINITY
35
36
44
114
11401
11402
11403
11404
11405
11406
11407
11408
11409
11410
11411
11412
11413


PRESSURE
0
500
2500
THETA 1
0
10
90
114
11401
11402
11403
11404
11405
11406
11407
11408
11409
11410
11411
11412
11413

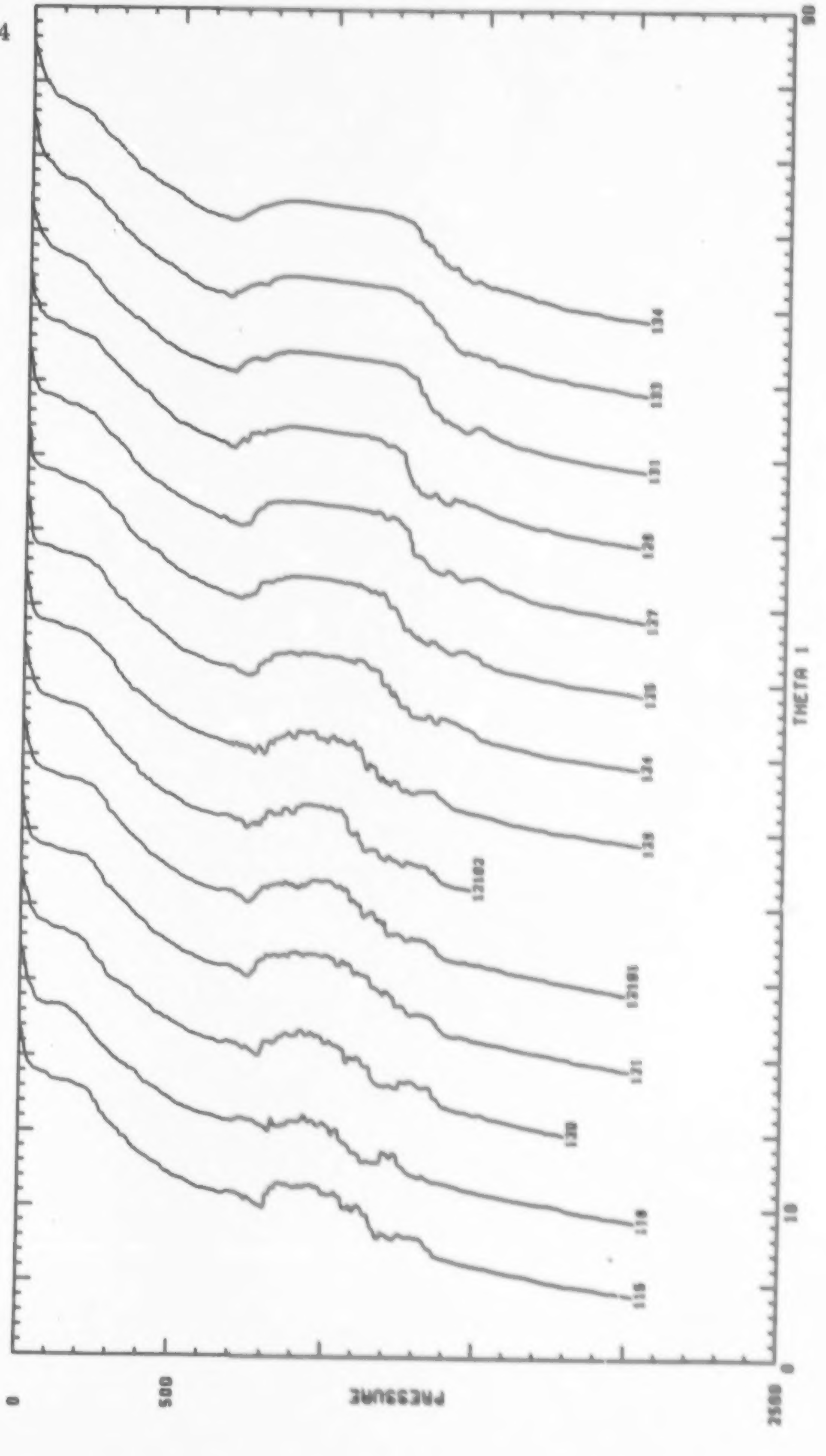

PRESSURE
0
500
2500
SIGMA 1

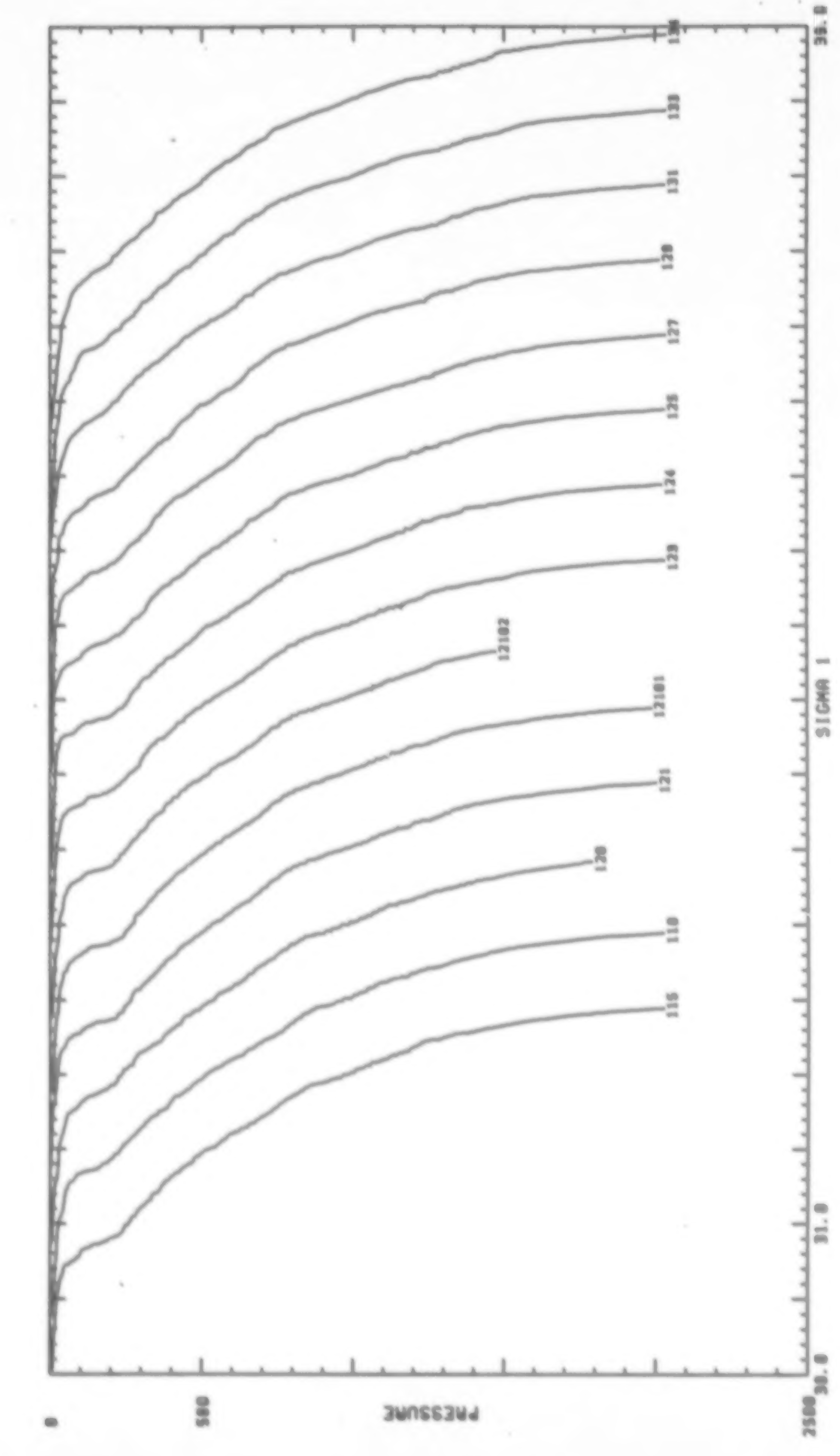
Survey II : June 1985



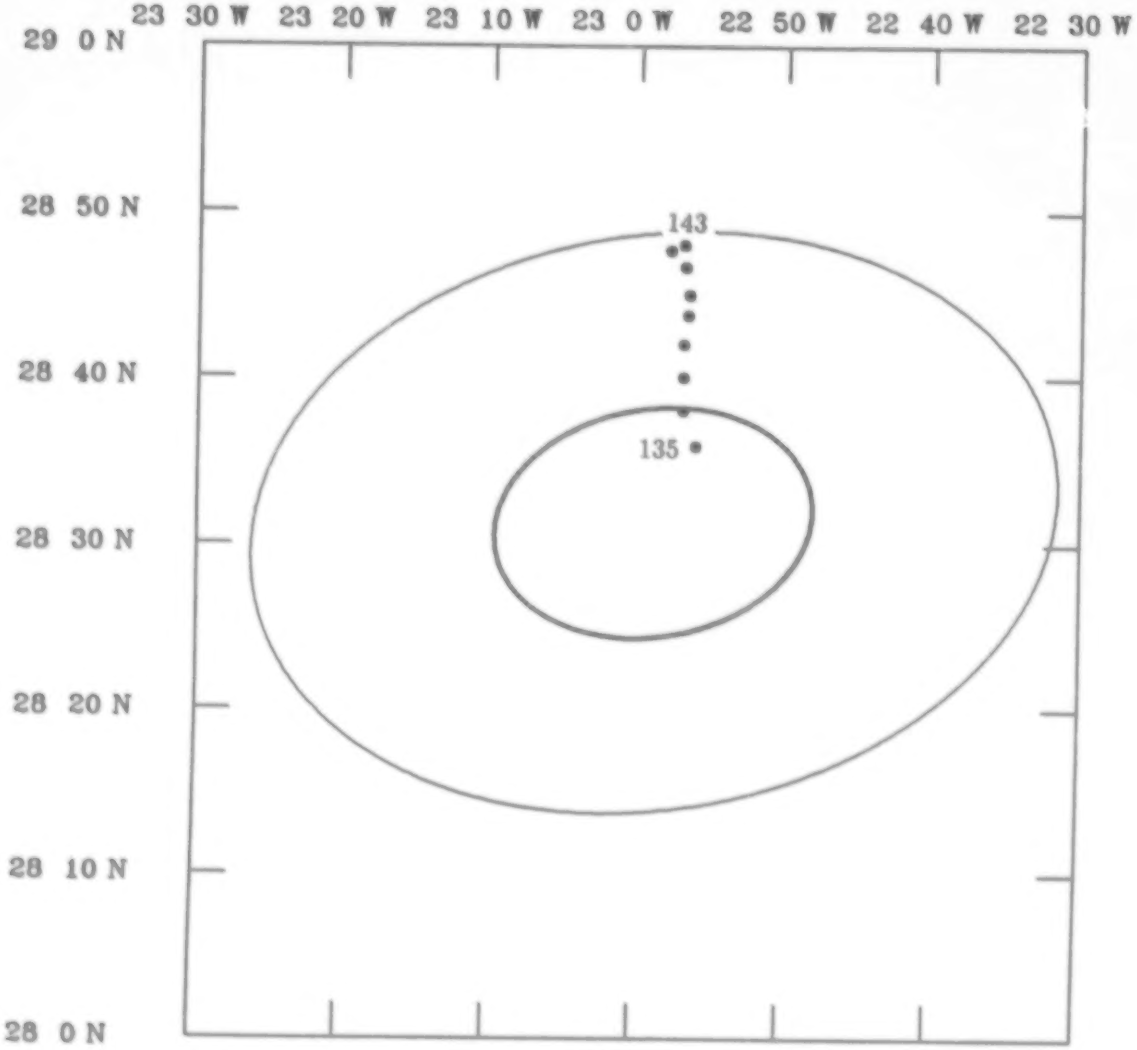


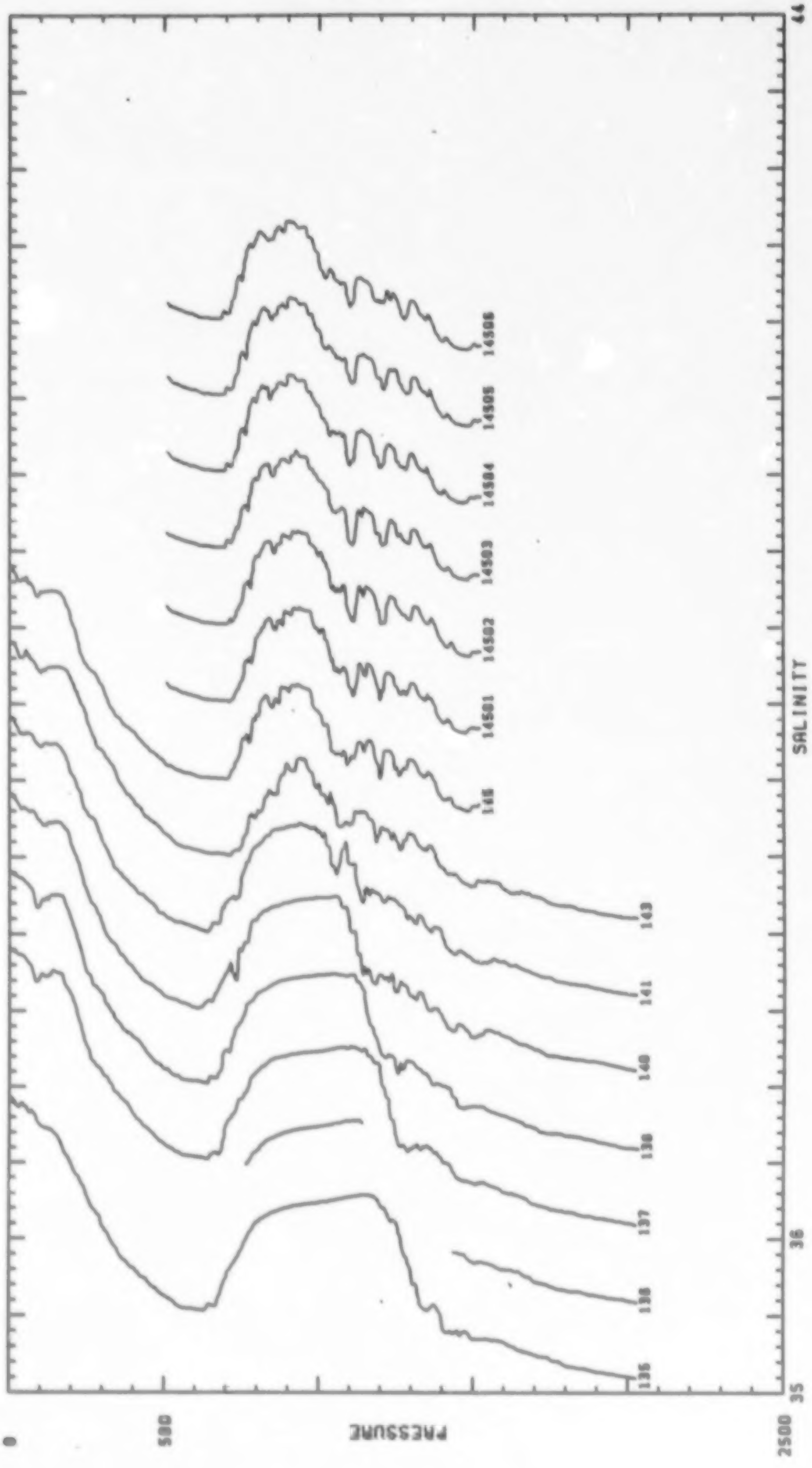
PRESSURE
0
500
2500
SALINITY
35
38
44
115
118
120
121
12101
12102
123
124
125
127
128
131
133
134

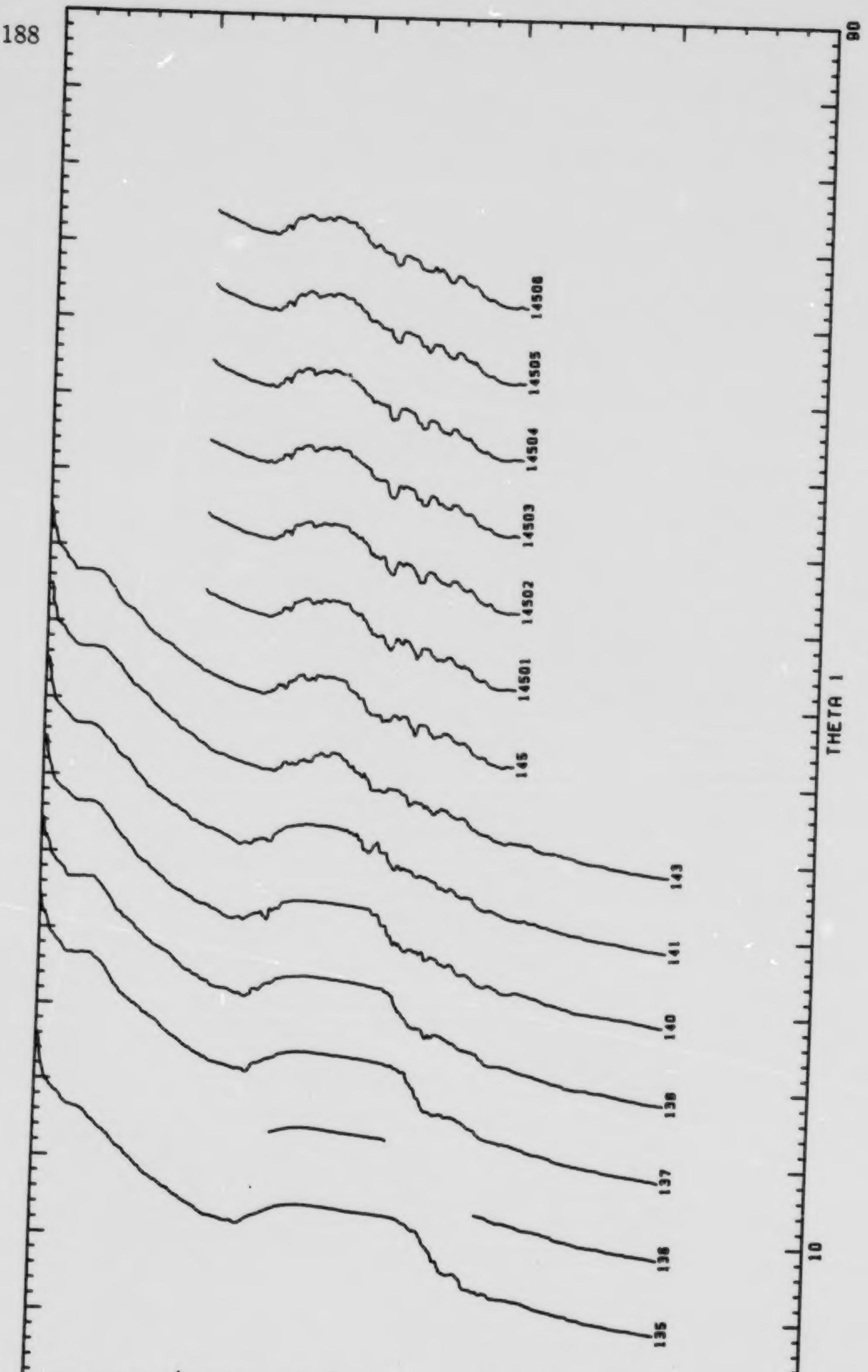

PRESSURE
0
500
2500
THETA I
0
10
90

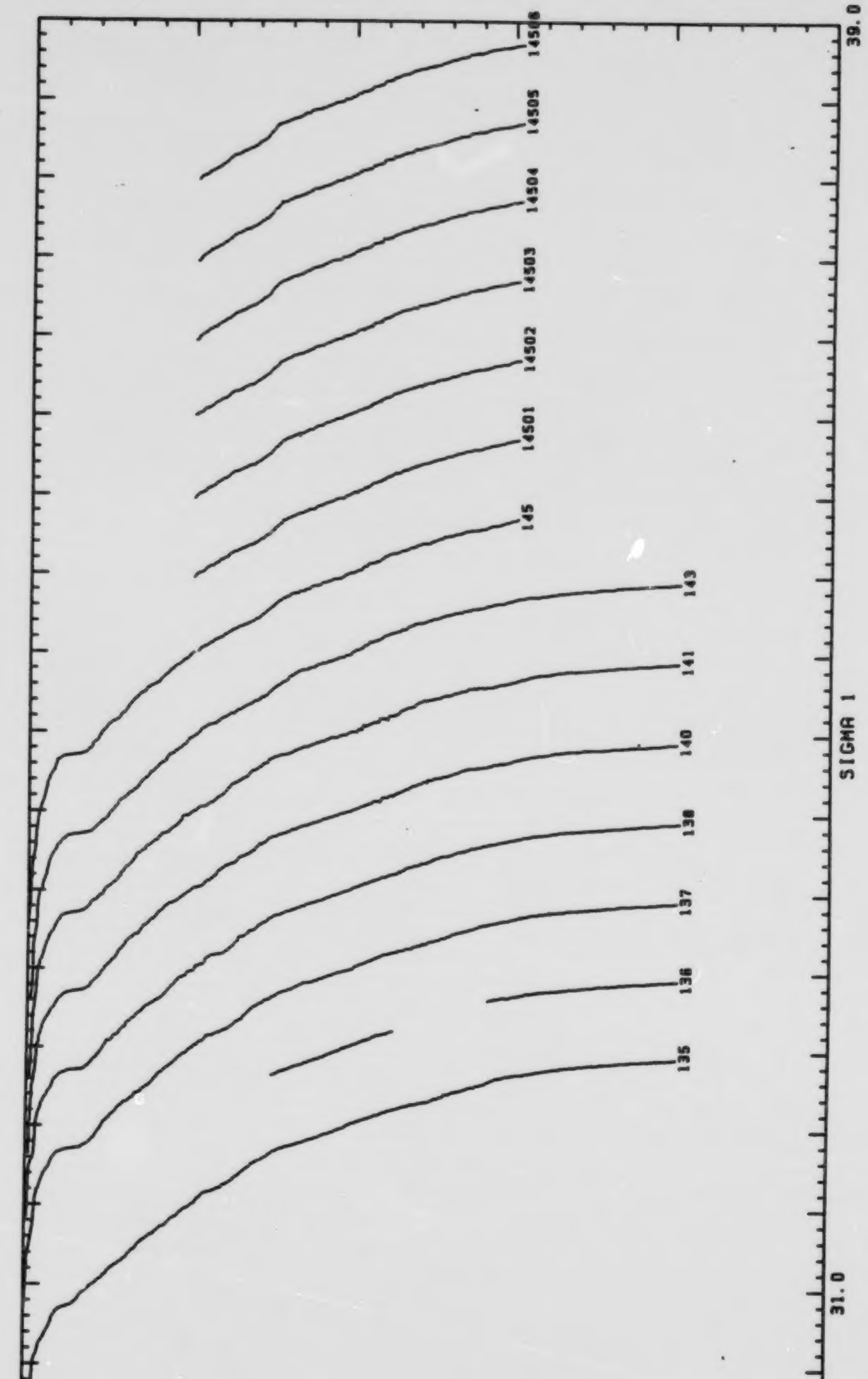

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
35.0
12102
12101
121
120
123
124
127
131

Survey II : June 1985

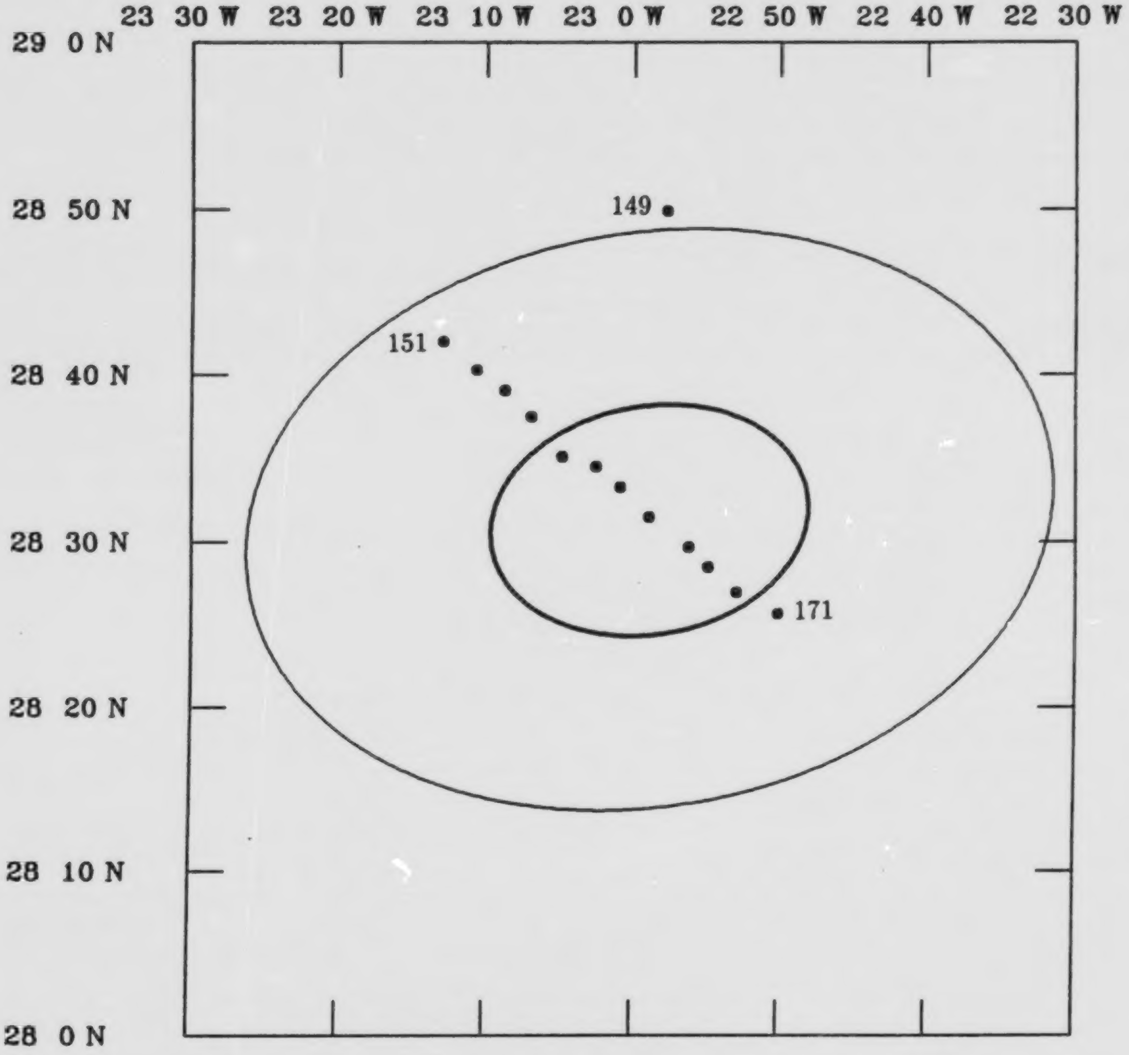


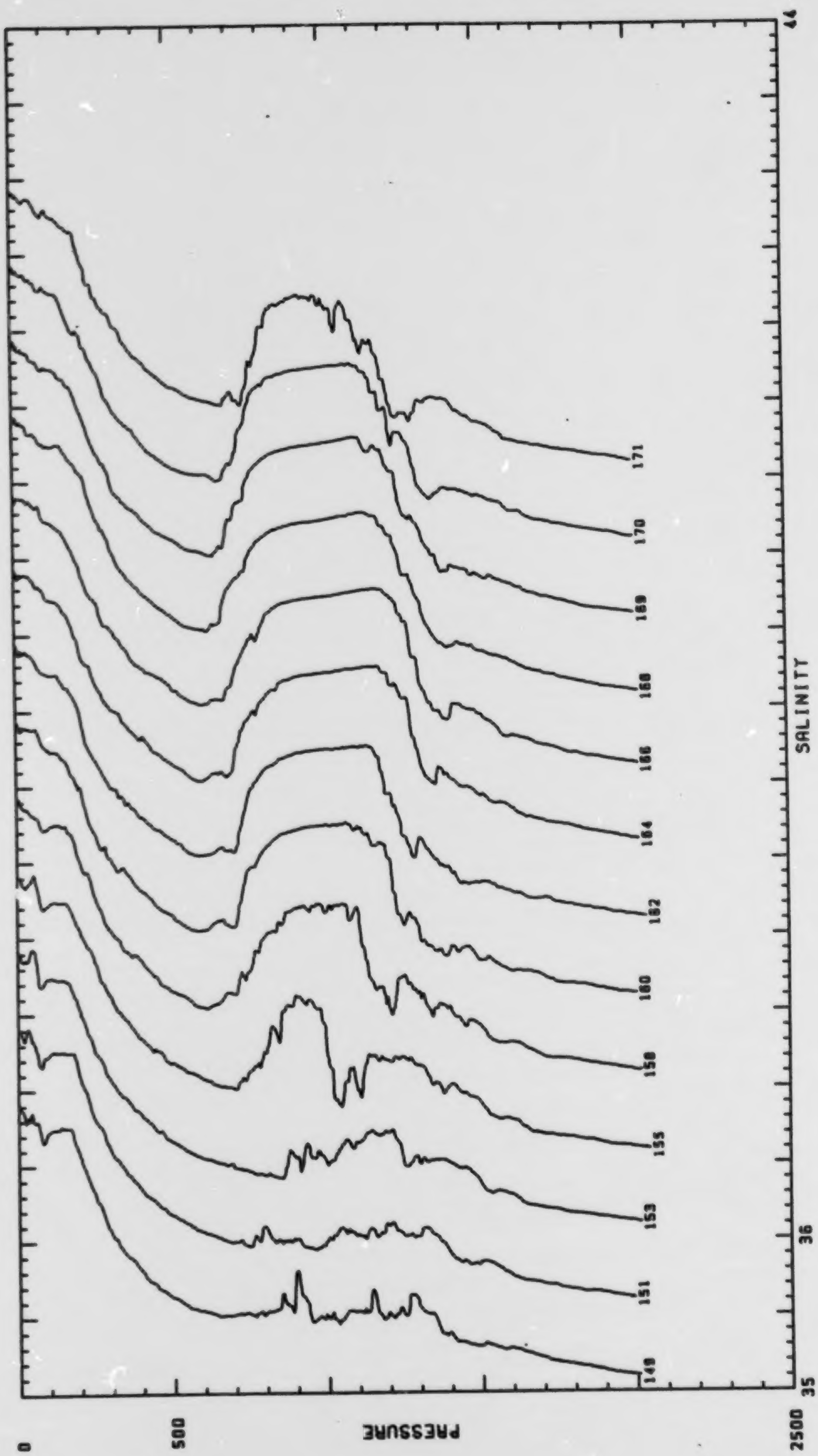

PRESSURE
SALINITY
0
500
2500
35
36
44
137
140
141
143
145
14501
14502
14503
14504
14505
14506

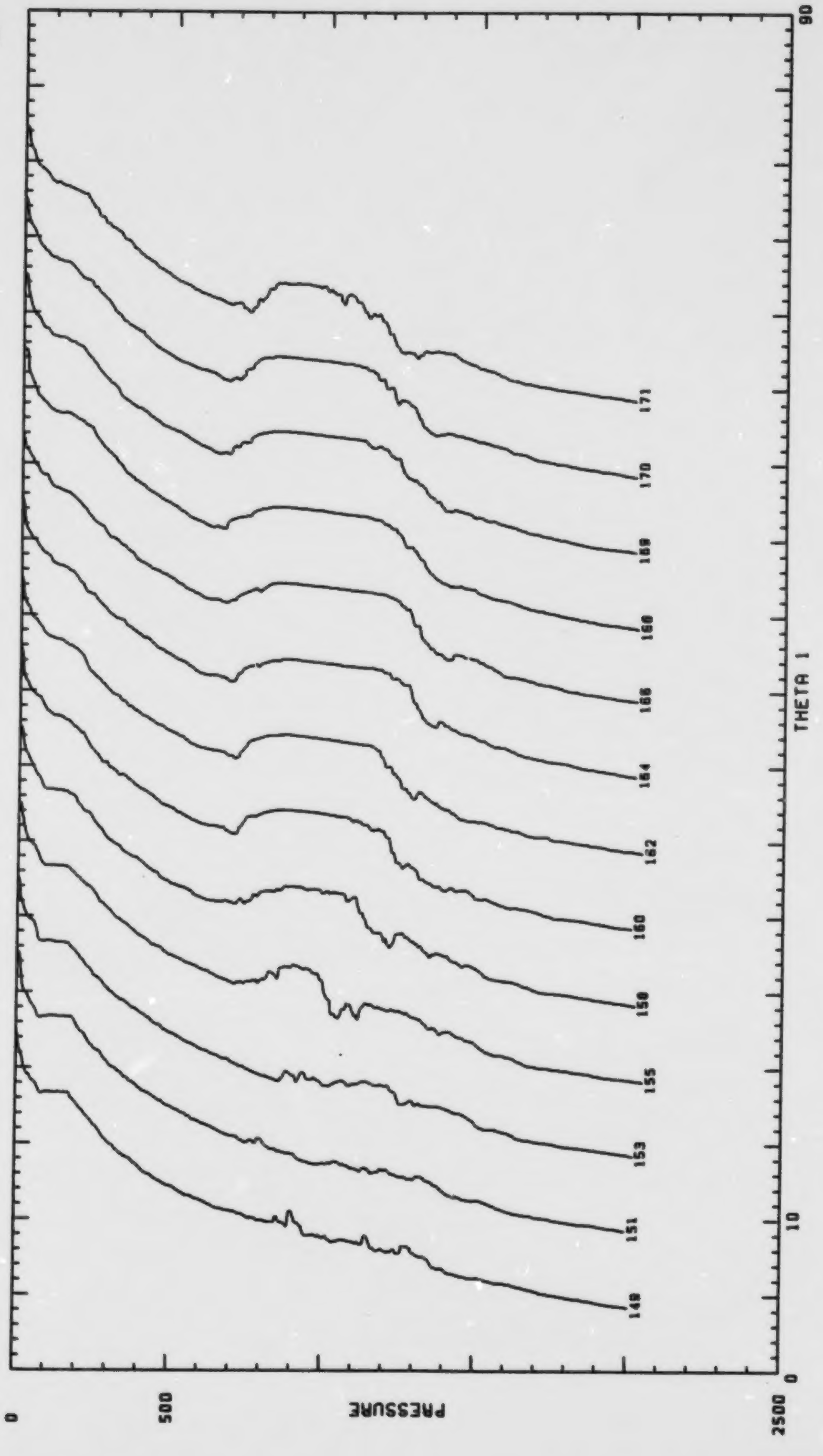

PRESSURE
0
500
2500
THETA 1
0
10
90
135
136
137
138
140
141
143
145
14501
14502
14503
14504
14505
14506

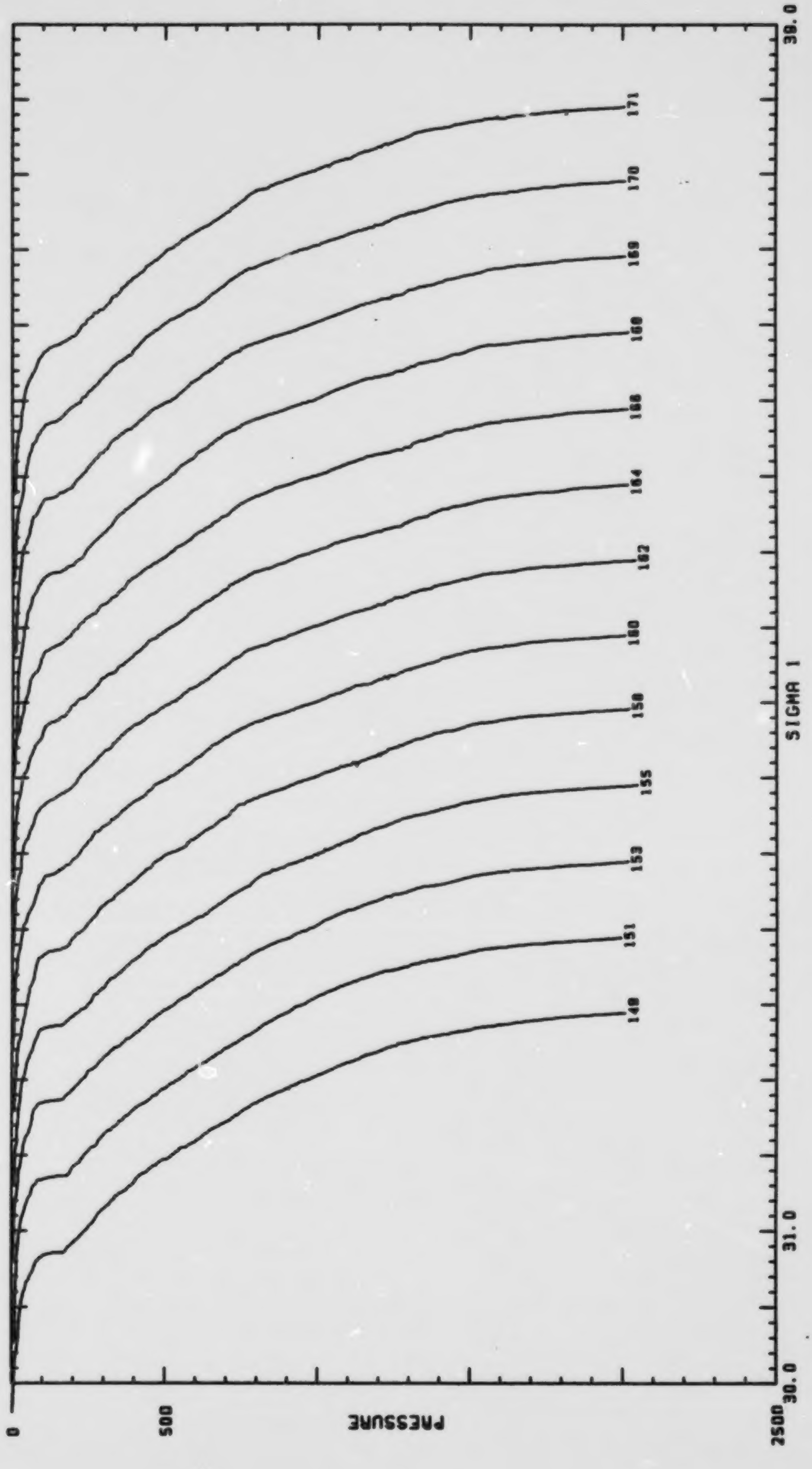

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
135
136
137
138
140
141
143
145
14501
14502
14503
14504
14505

Survey II : June 1985

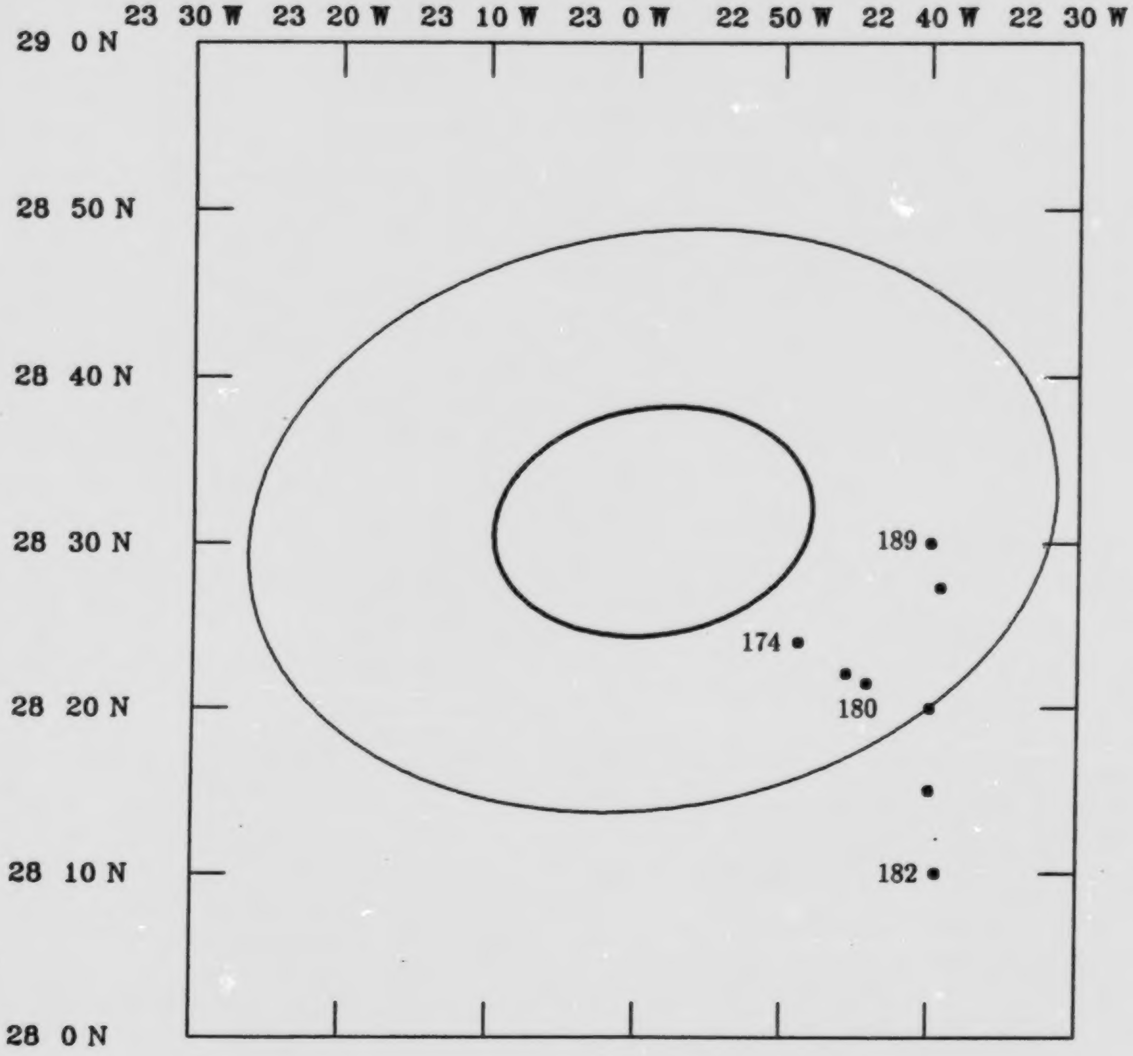


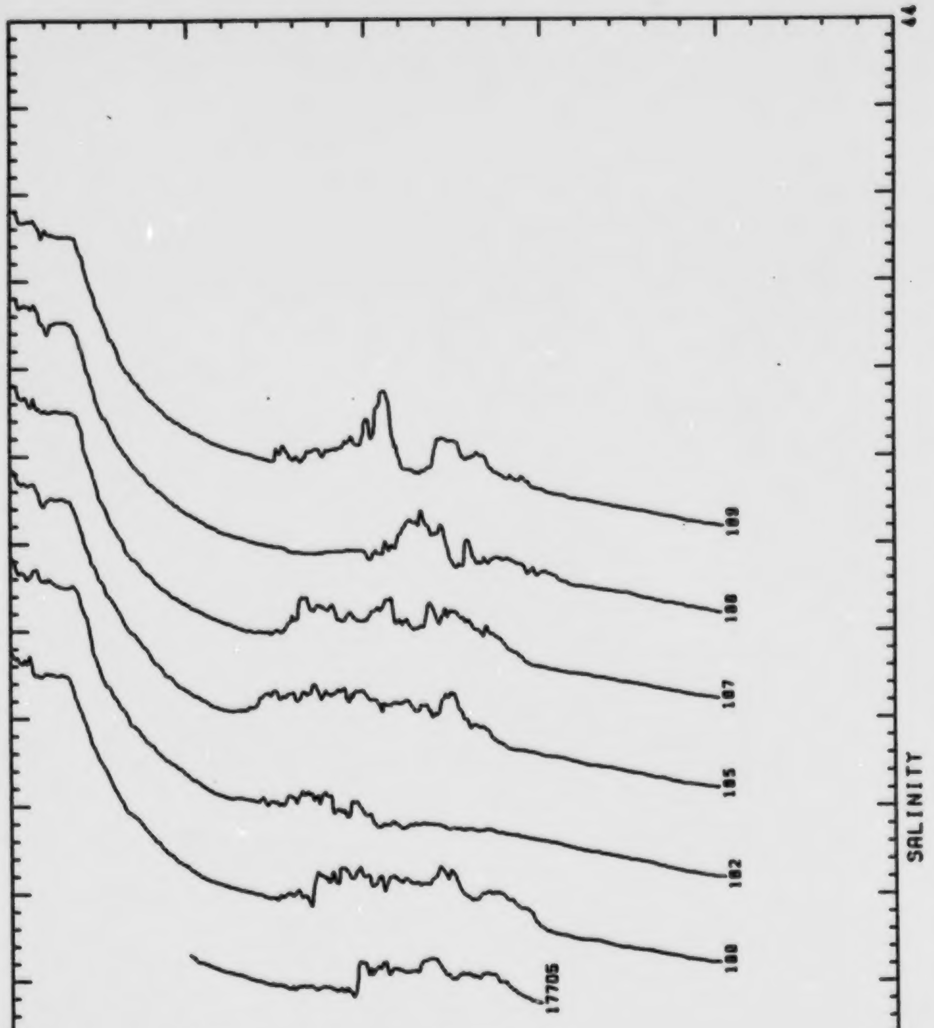

0
500
PRESSURE
2500
35
36
SALINITY
44
149
151
153
155
158
160
162
164
166
168
169
170
171

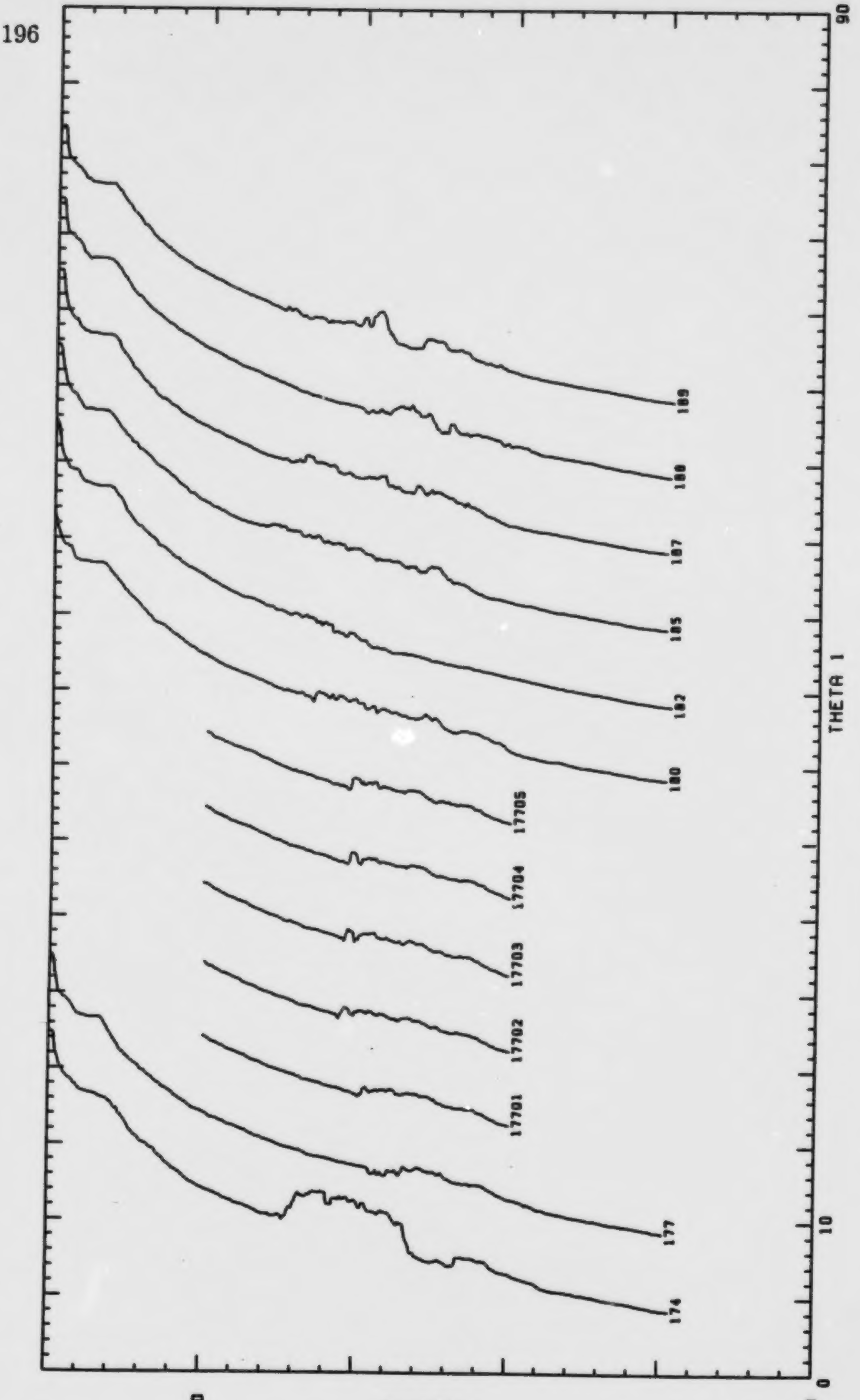

PRESSURE
0
500
2500
THETA 1
0
10
90
171
170
164
162
160
155
153
151

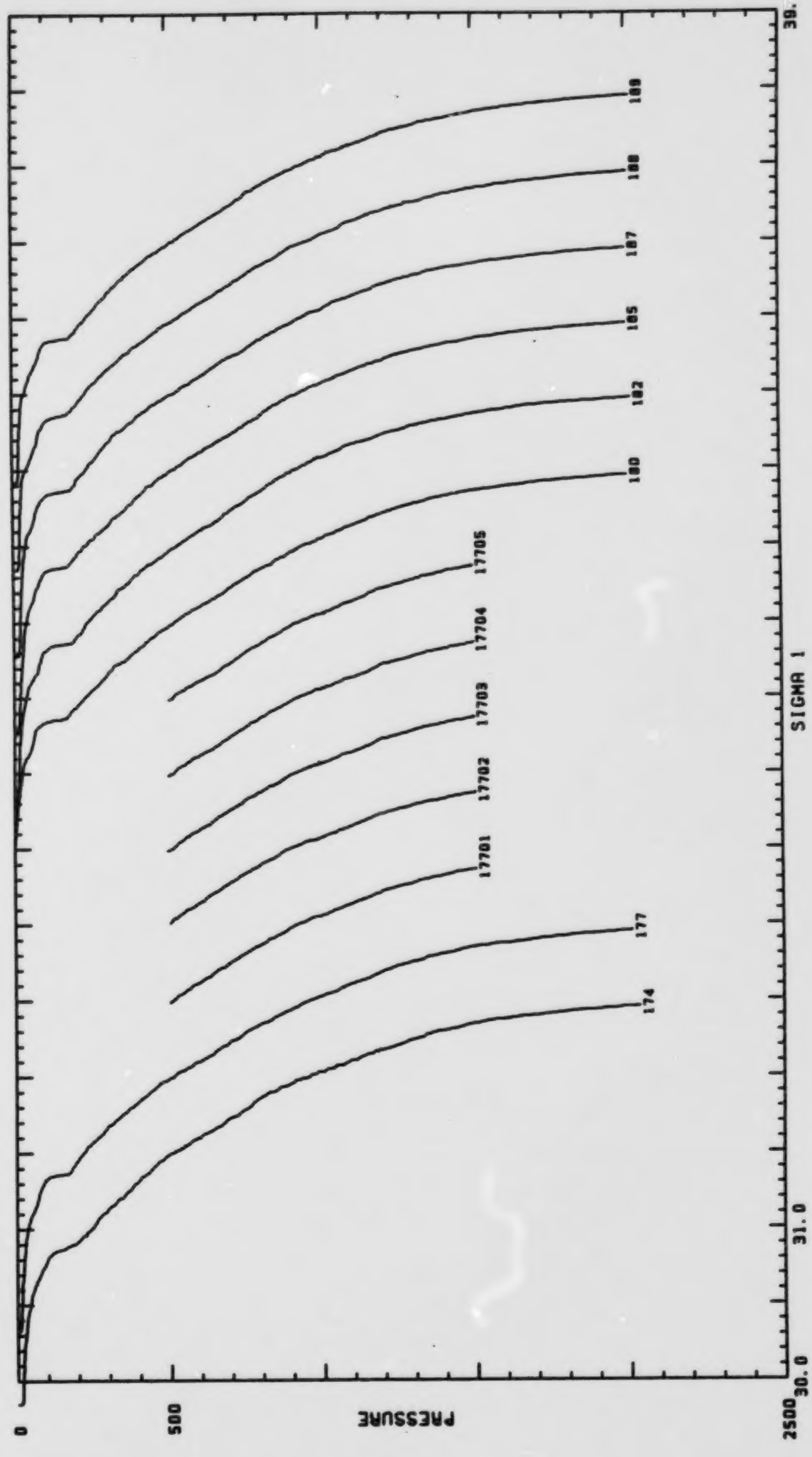

PRESSURE
SIGMA 1
0
500
2500
30.0
31.0
38.0

Survey II : June 1985

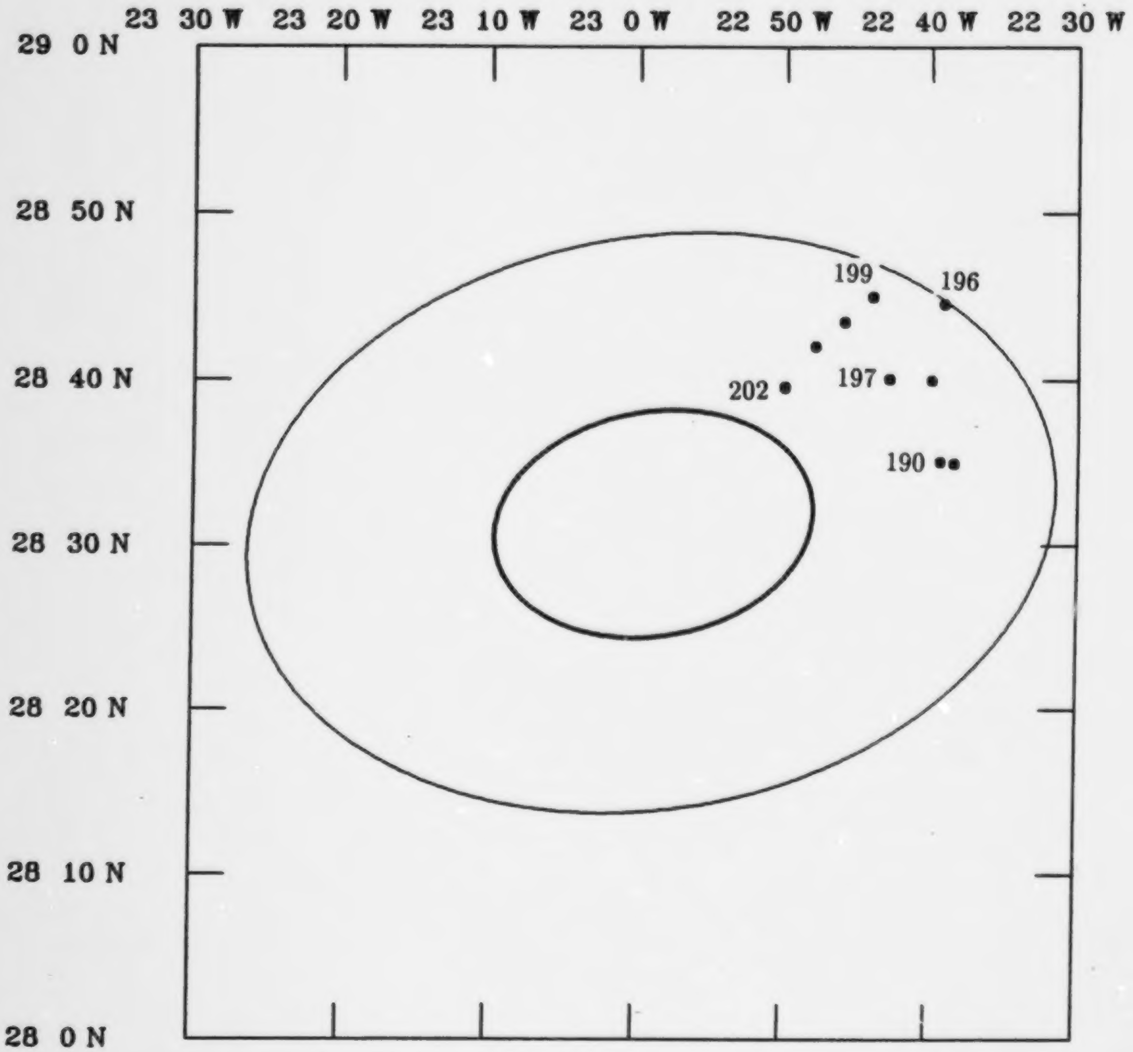


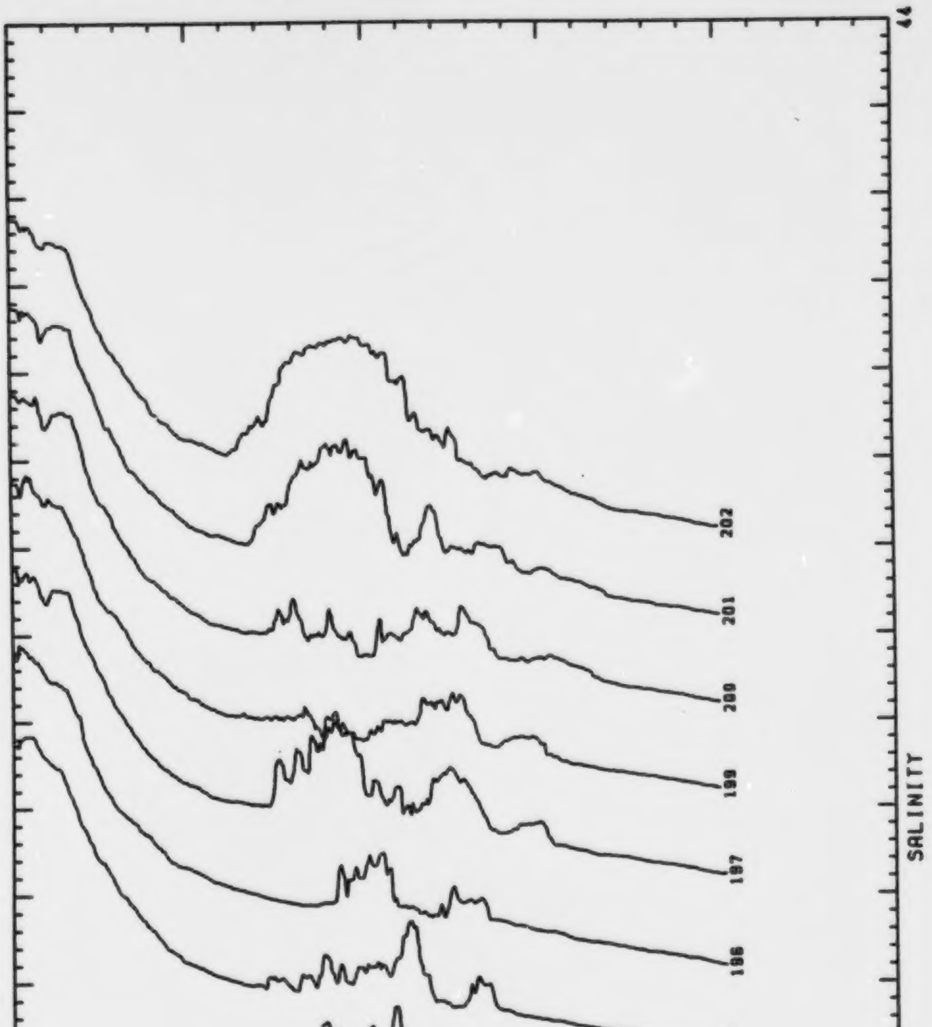

PRESSURE
0
500
2500
SALINITY
35
36
44
174
177
17701
17702
17703
17704
17705
182
185
187

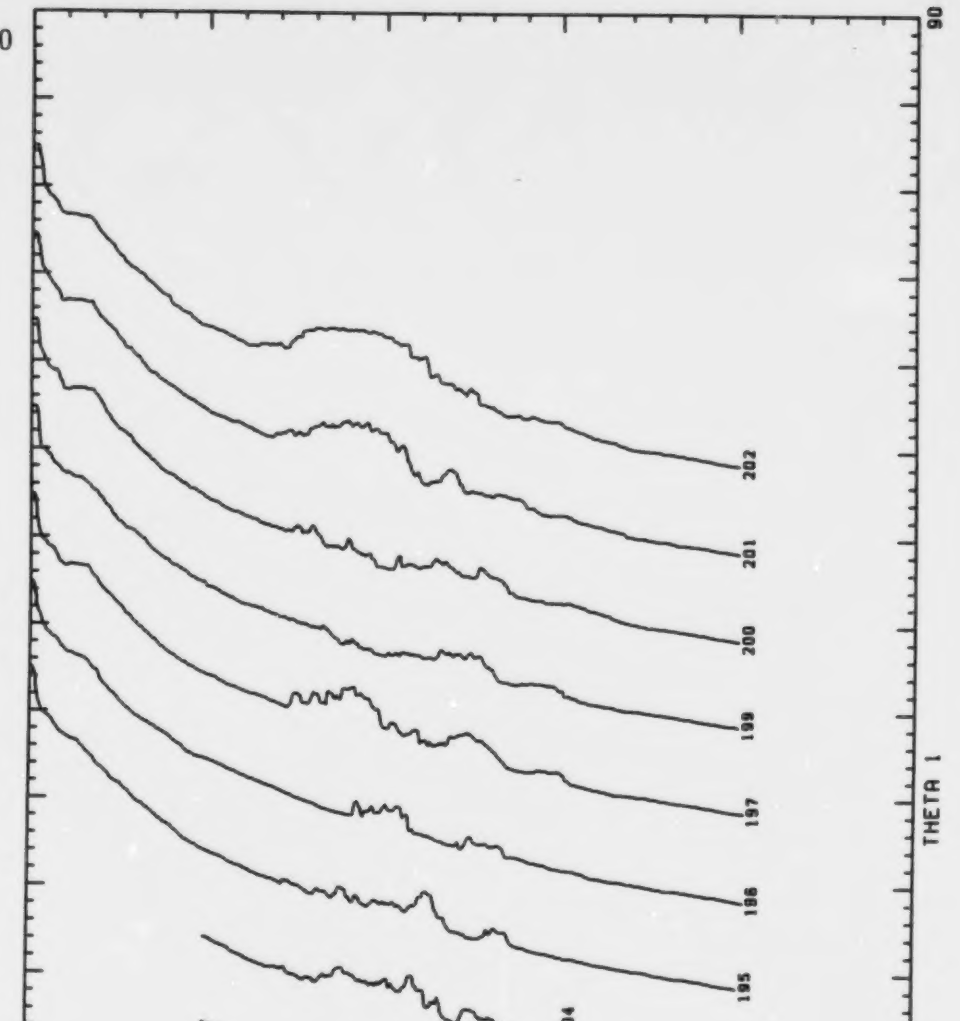

PRESSURE
0
500
2500
THETA 1
0
10
90
189
188
187
185
182
180
17705
17704
17703
17702
17701
177
174


PRESSURE
SIGMA 1
0
500
2500
30.0
31.0
174
177
17701
17702
17703
17704
17705
180
182
185
187

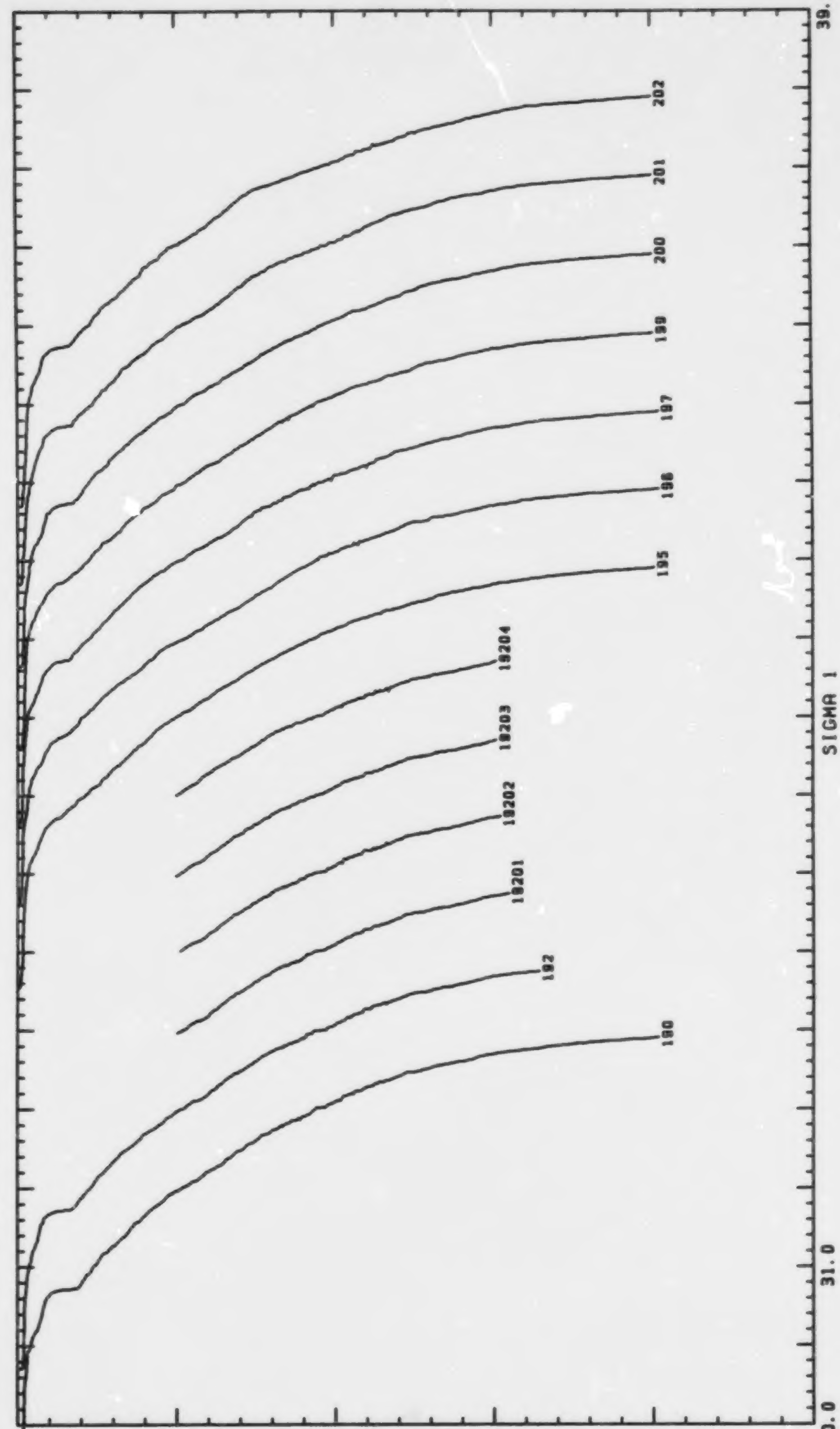
Survey II : June 1985



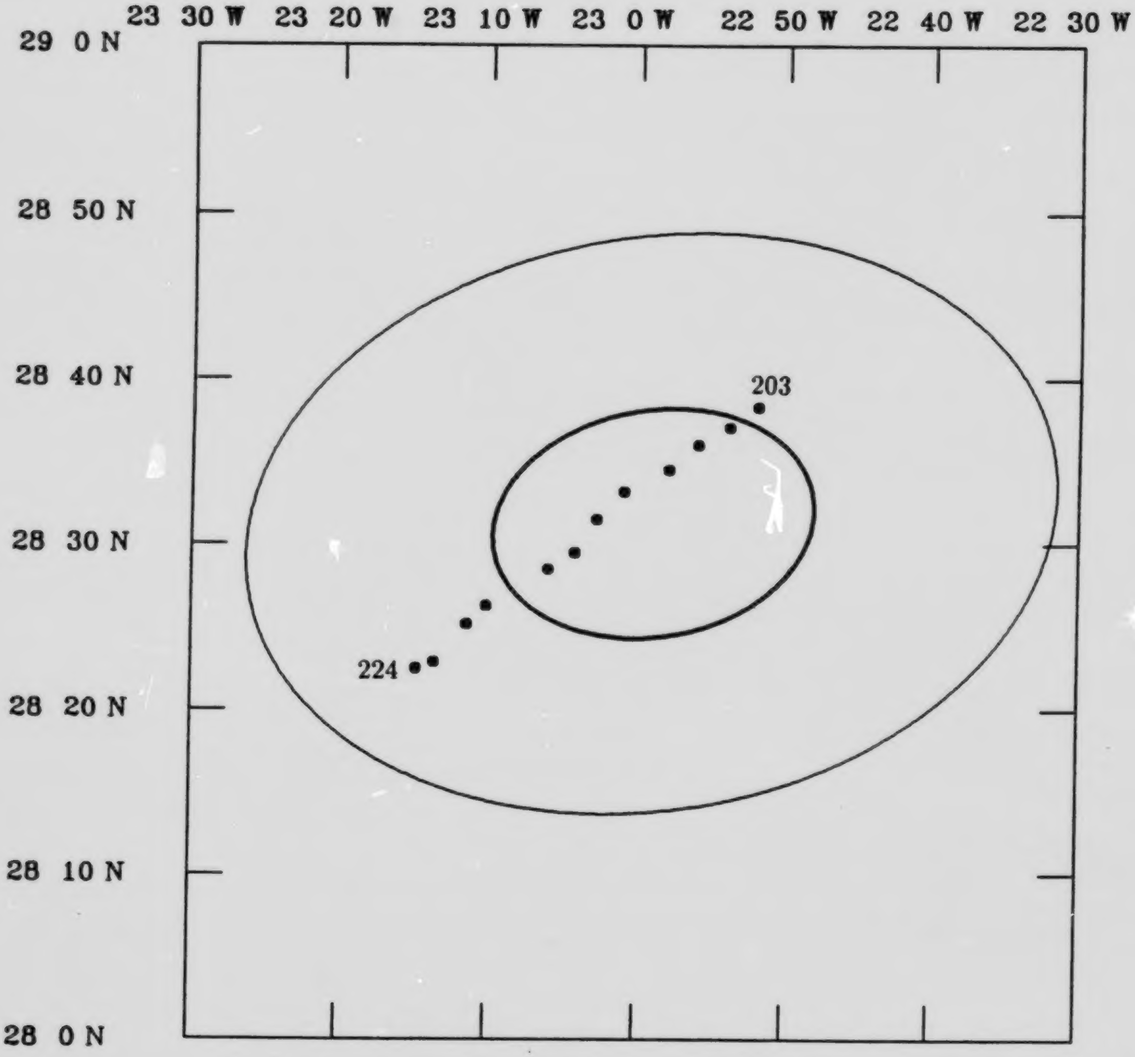

PRESSURE
0
500
2500
SALINITY
35
36
44
190
192
19201
19202
19203
19204
195
196
197
199
200
201
202

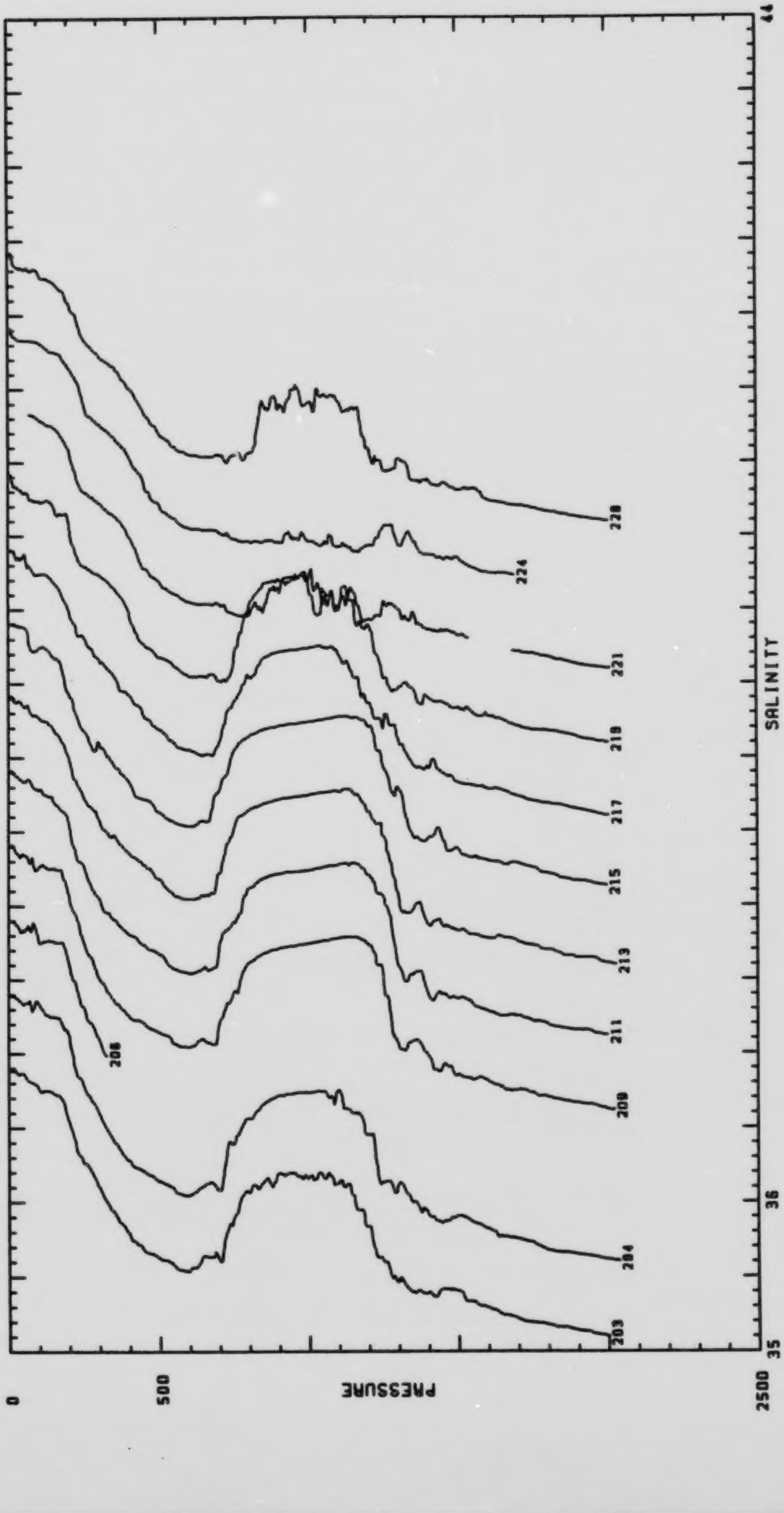


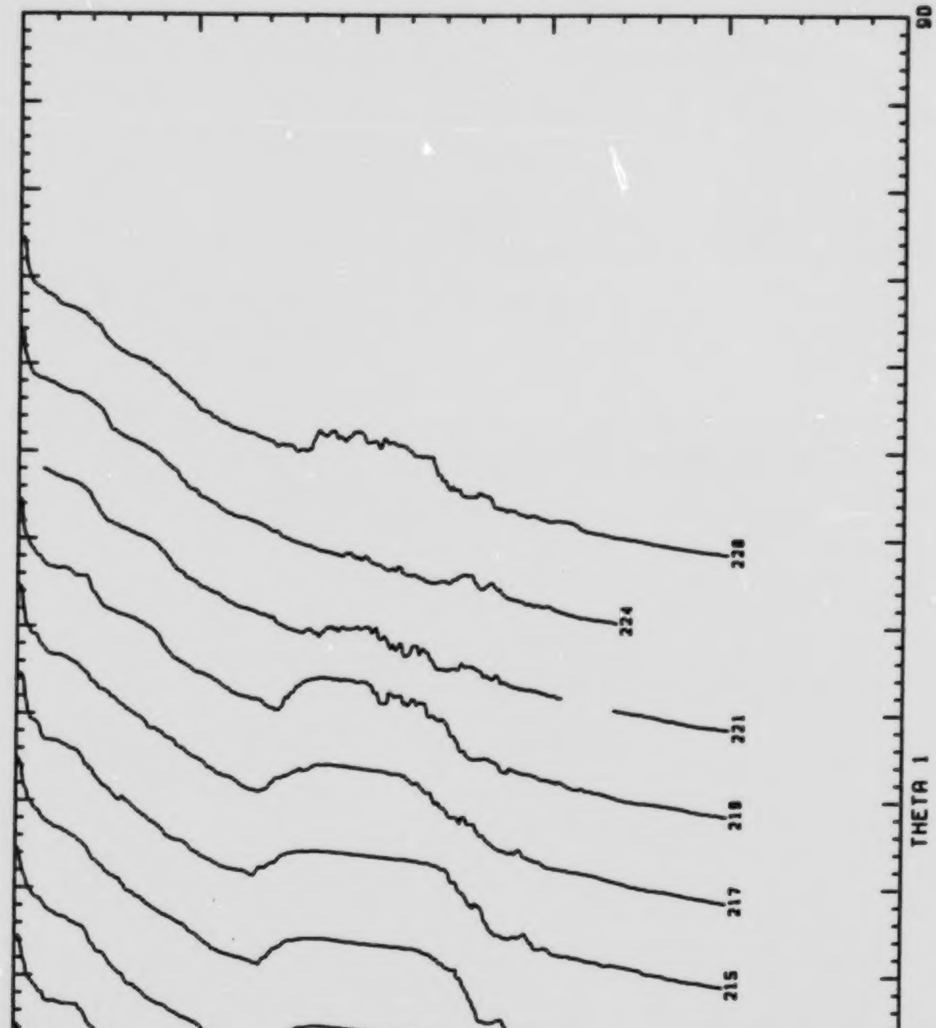
PRESSURE
0
500
2500
THETA 1
0
10
90
202
201
200
199
197
196
195
19204
19203
19202
19201
192
190


PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
190
192
19201
19202
19203
19204
195
196
197
199
200
201
202

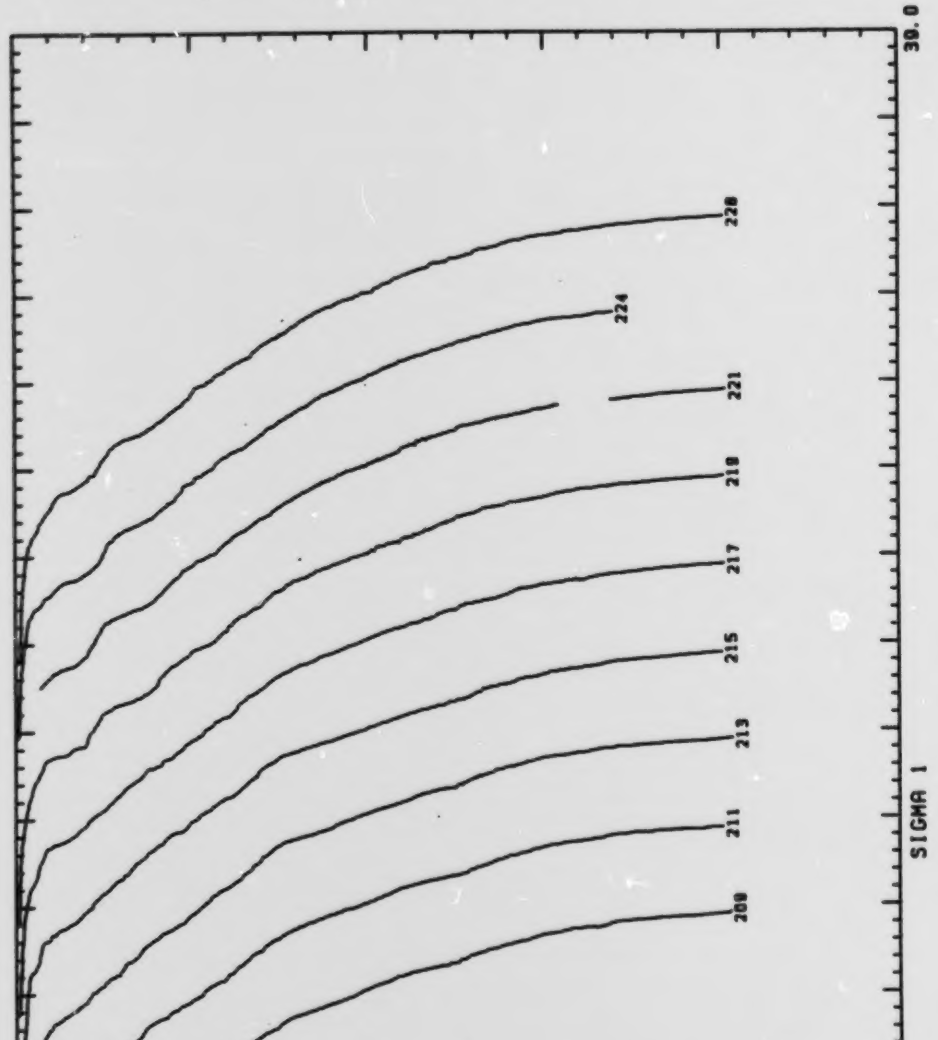
Survey II : June 1985



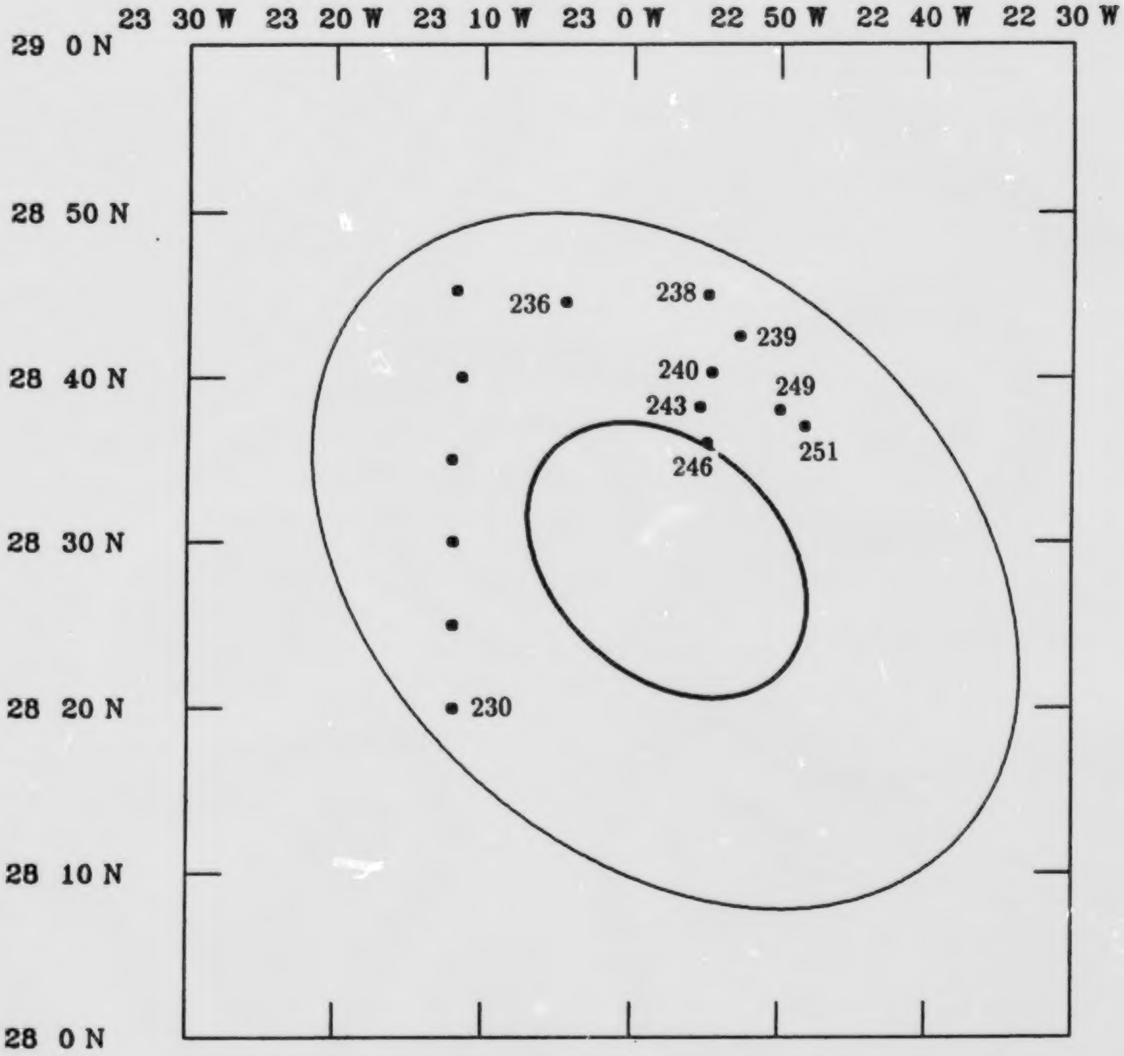

PRESSURE
0
500
2500
SALINITY
35
36
44
203
204
206
208
211
213
215
217
219
221
224
228

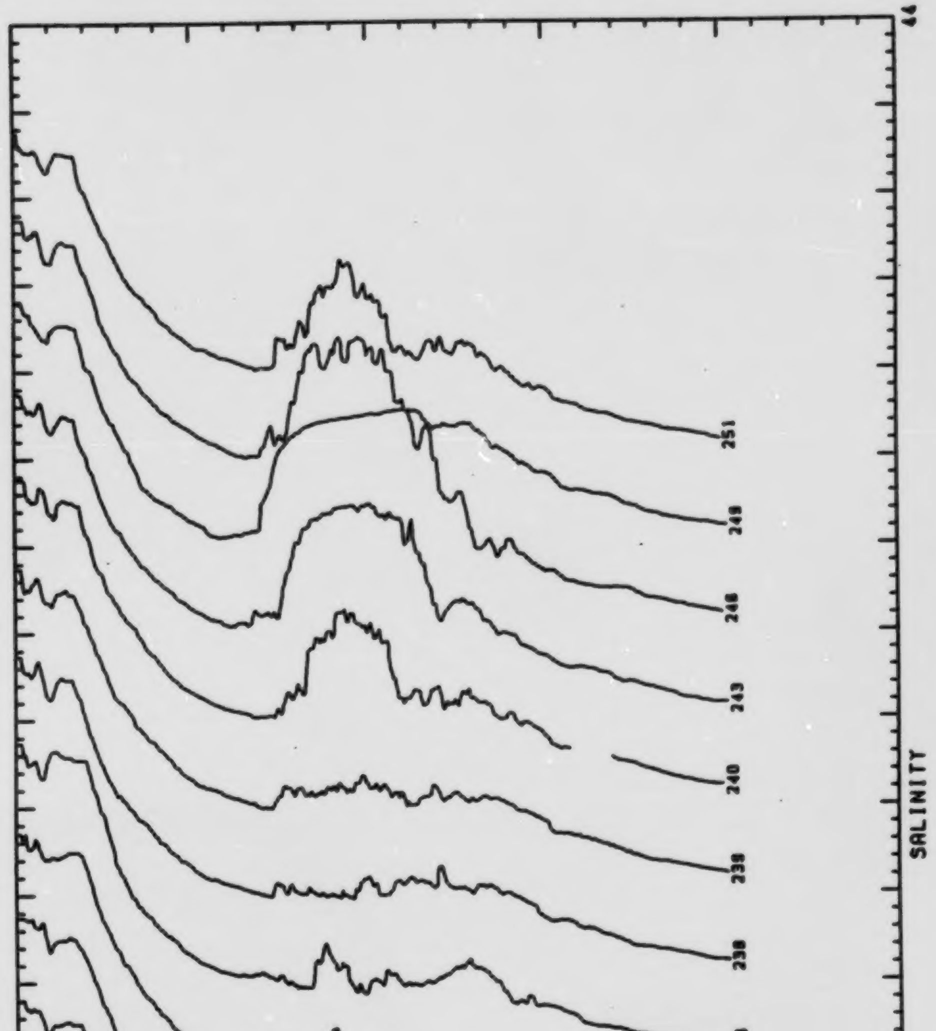


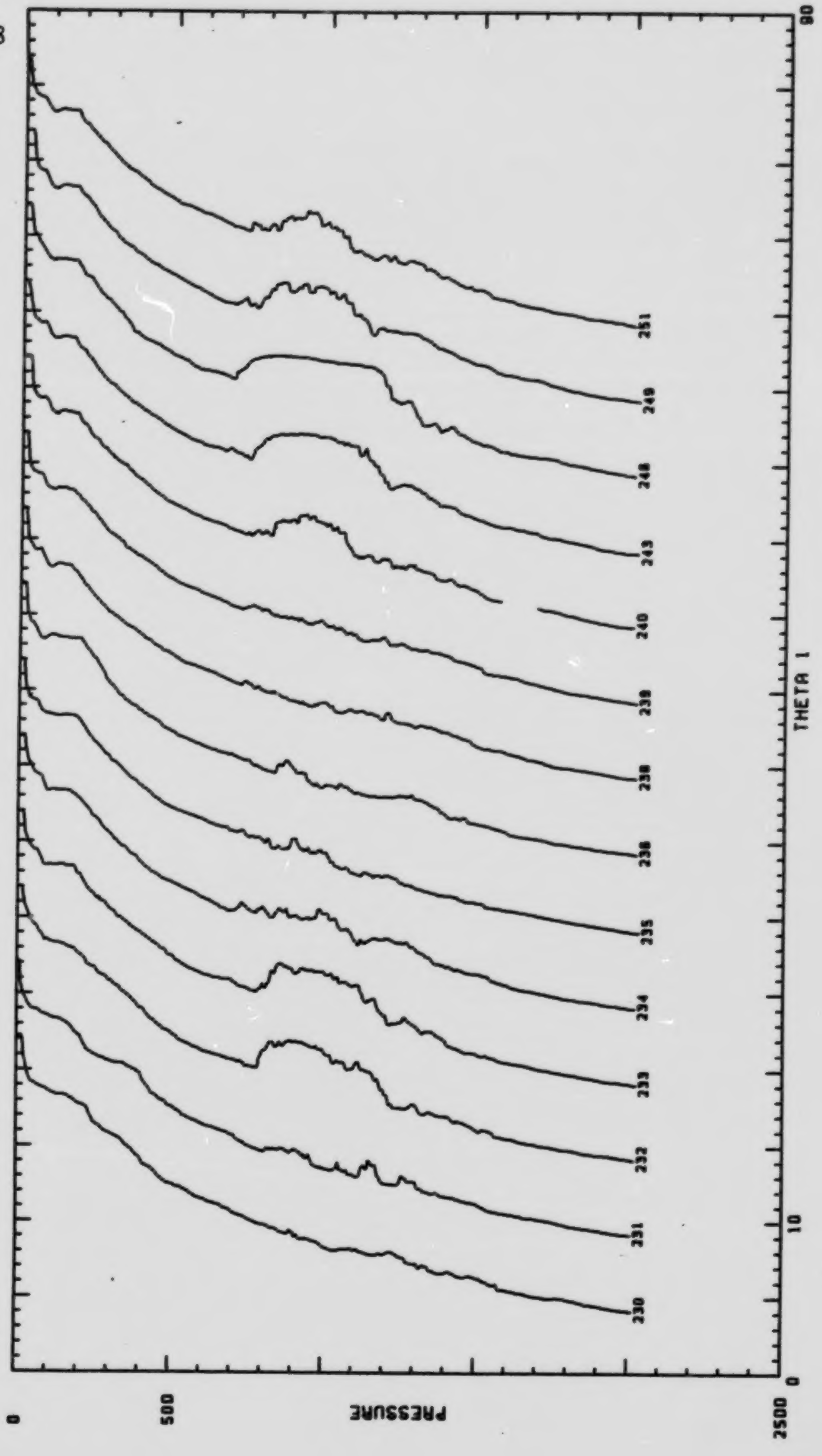
PRESSURE
0
500
2500
THETA 1
0
10
90
228
224
221
218
217
215
213
211
208
206
204
203


0
500
PRESSURE
2500
30.0
31.0
30.0
SIGMA 1
203
204
206
208
211
213
215
217
218
221
224
228

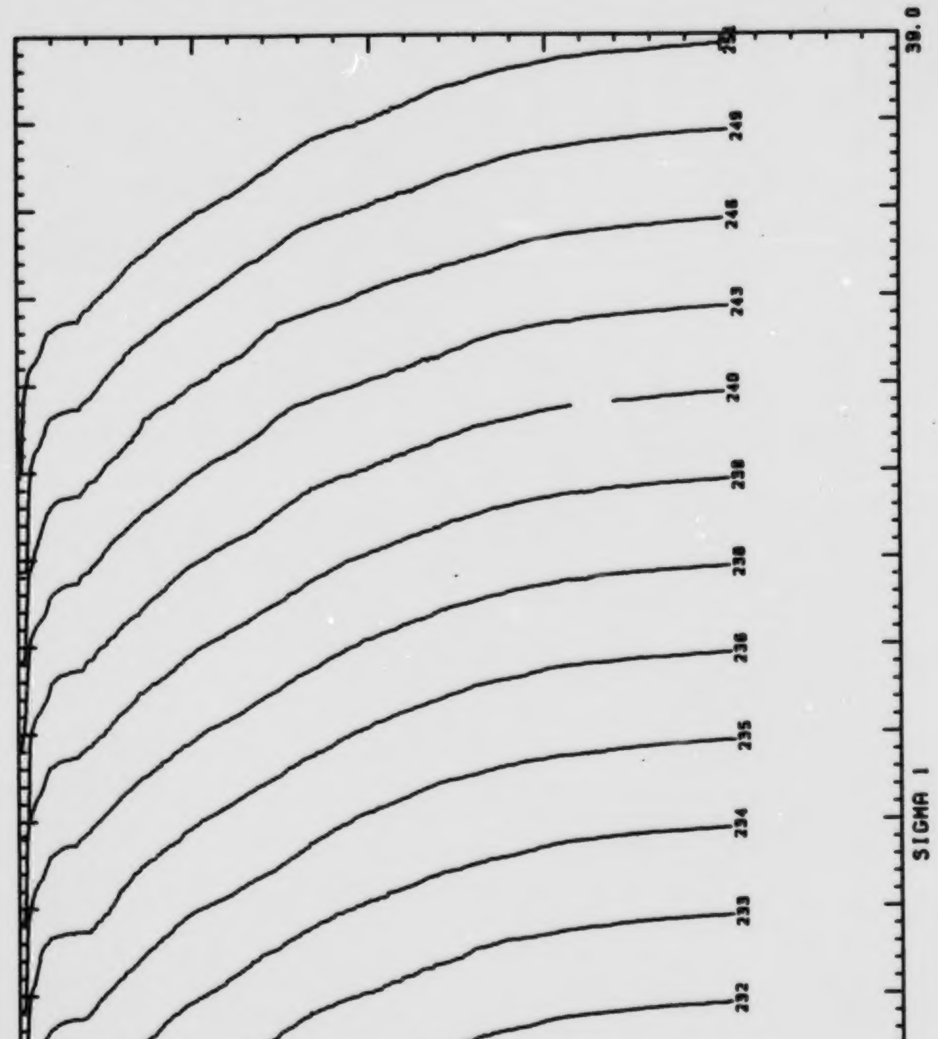
Survey II : June 1985




PRESSURE
0
500
2500
SALINITY
35
36
44
251
243
240
235
234
233
232
231
230

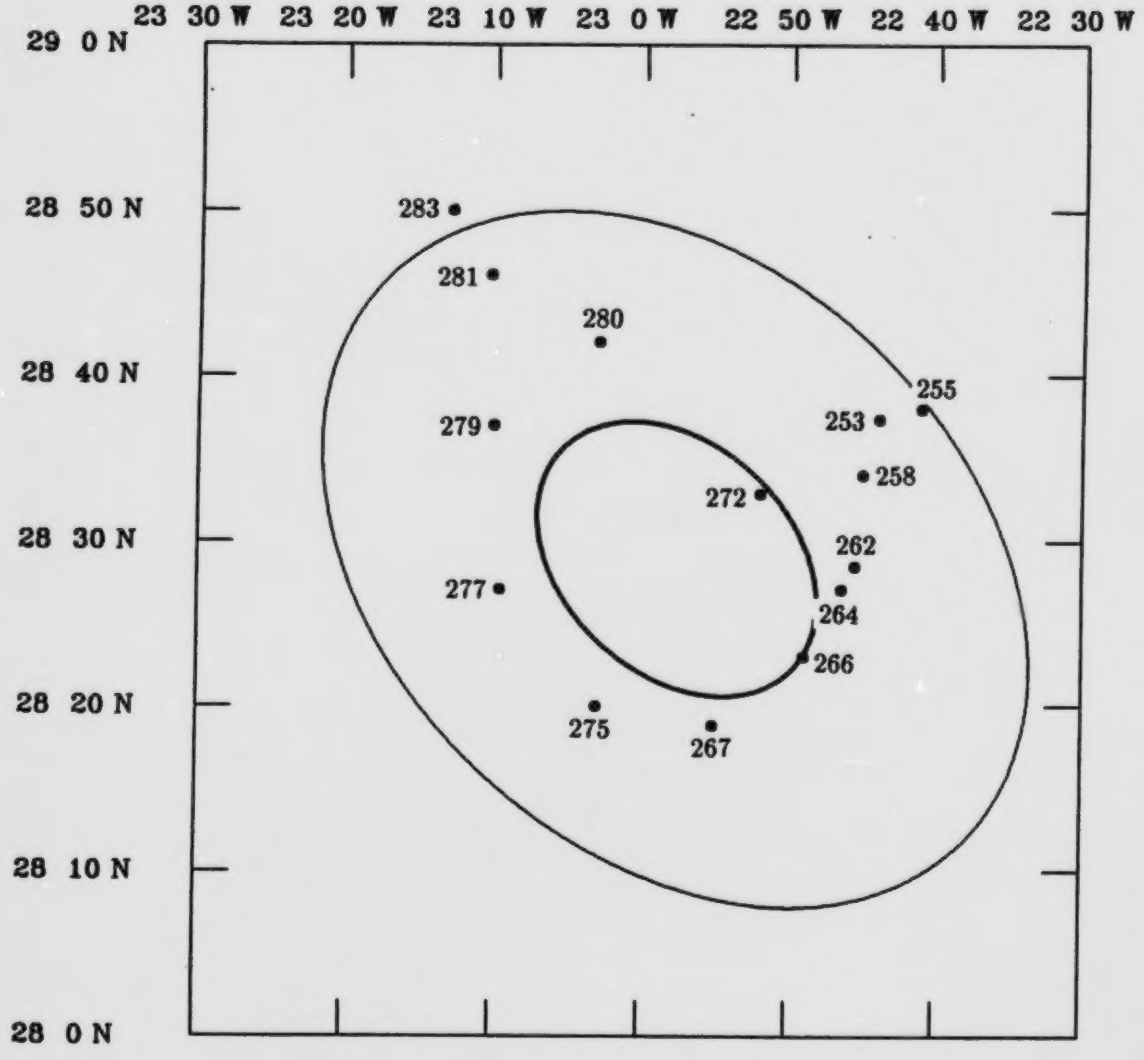


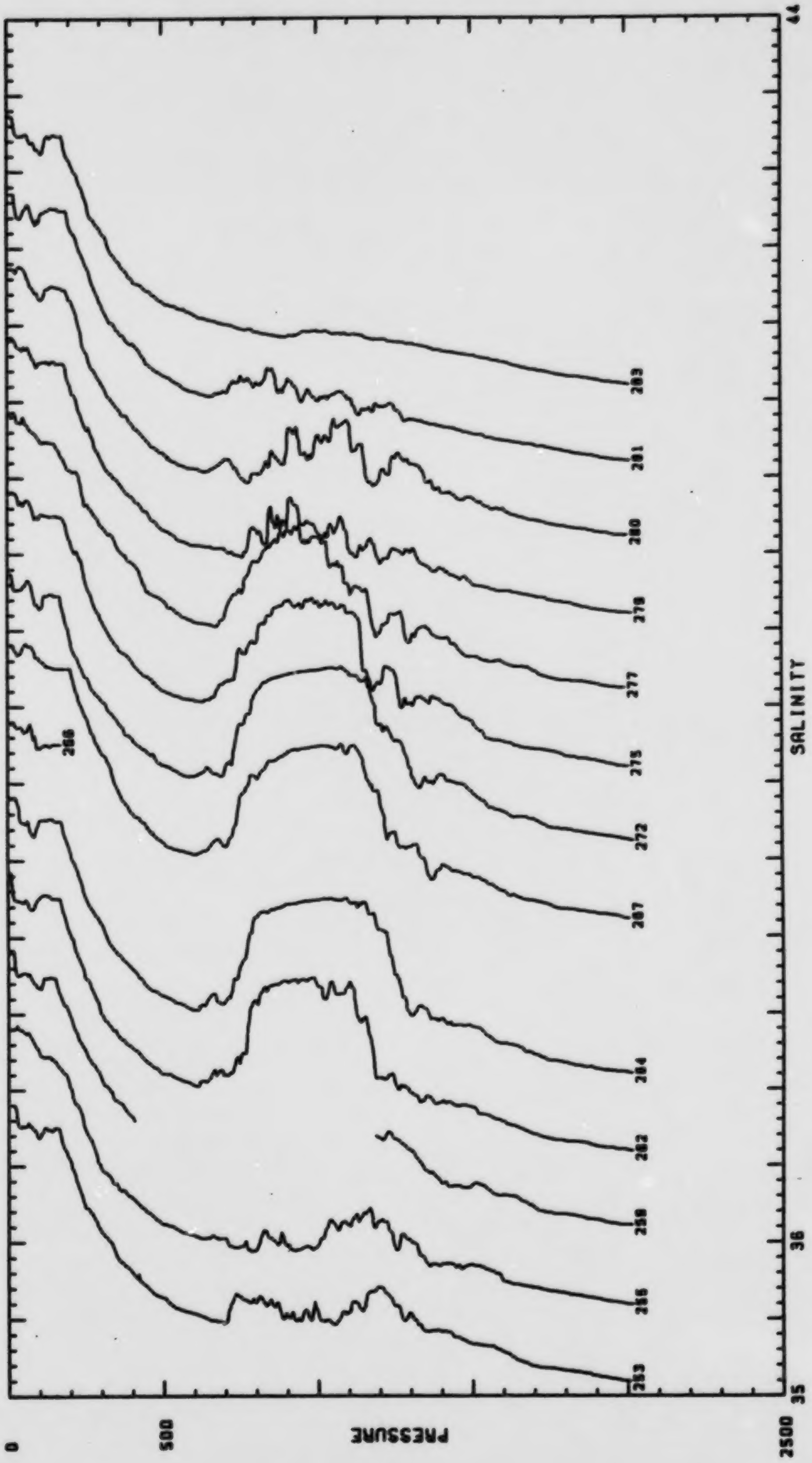
PRESSURE
0
500
2500
THETA 1
10
90

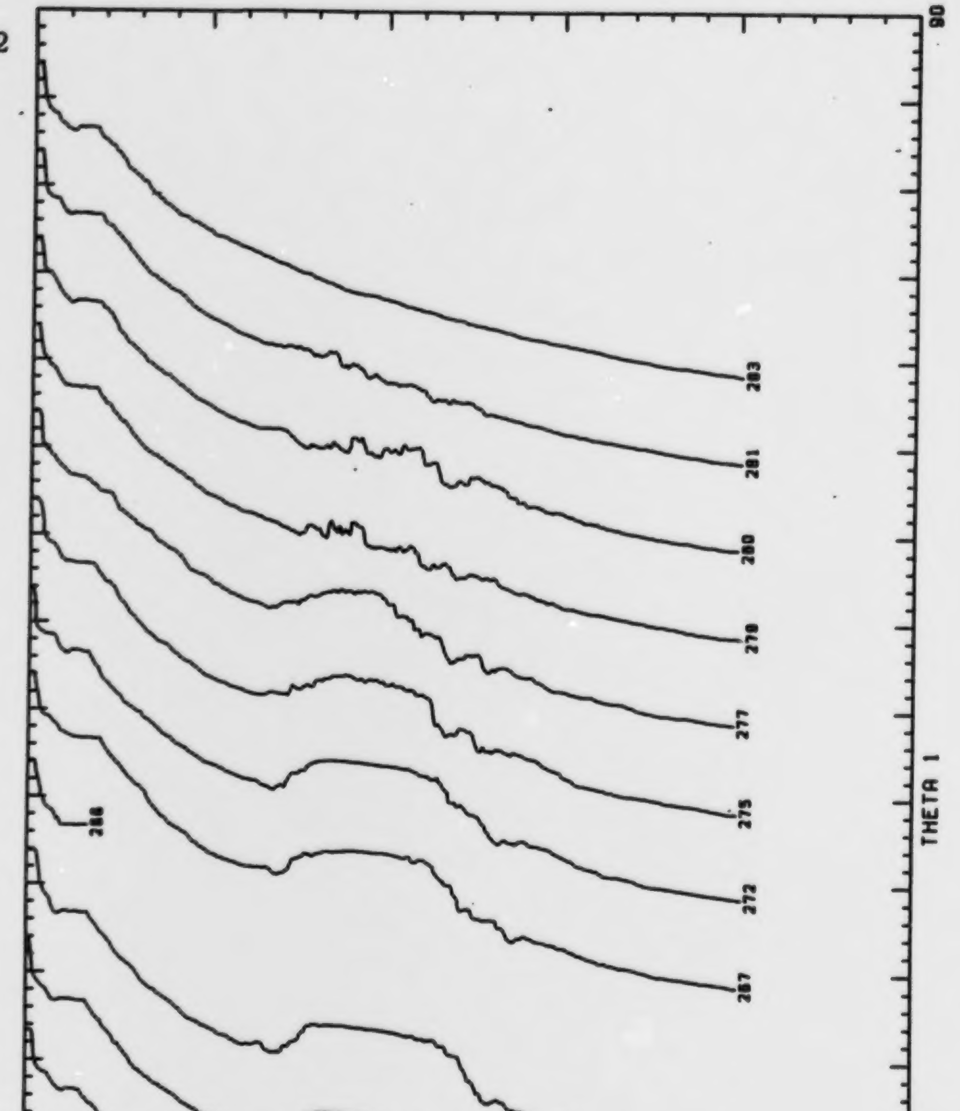


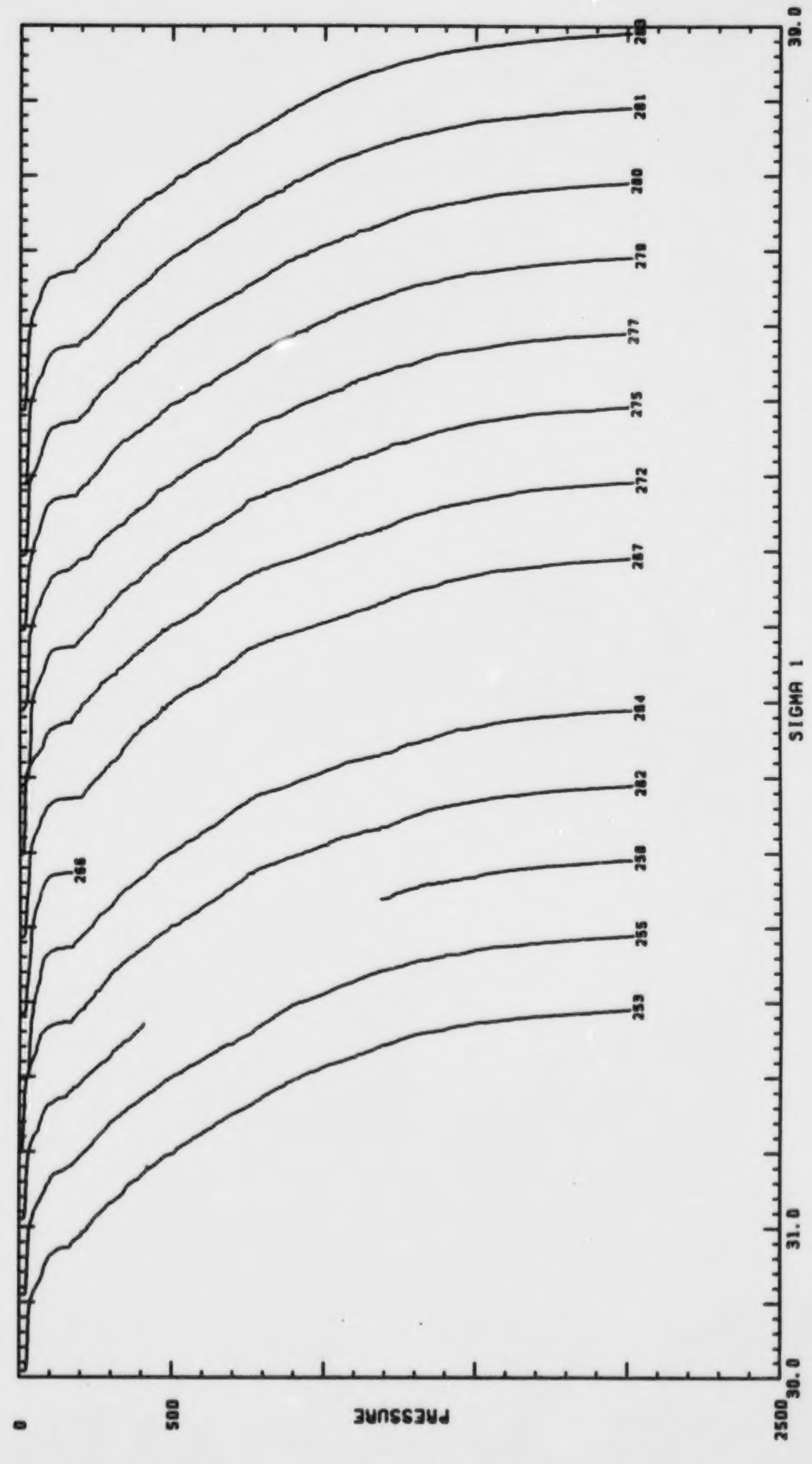
PRESSURE
SIGMA I
0
500
2500
30.0
31.0
39.0

Survey II : June 1985

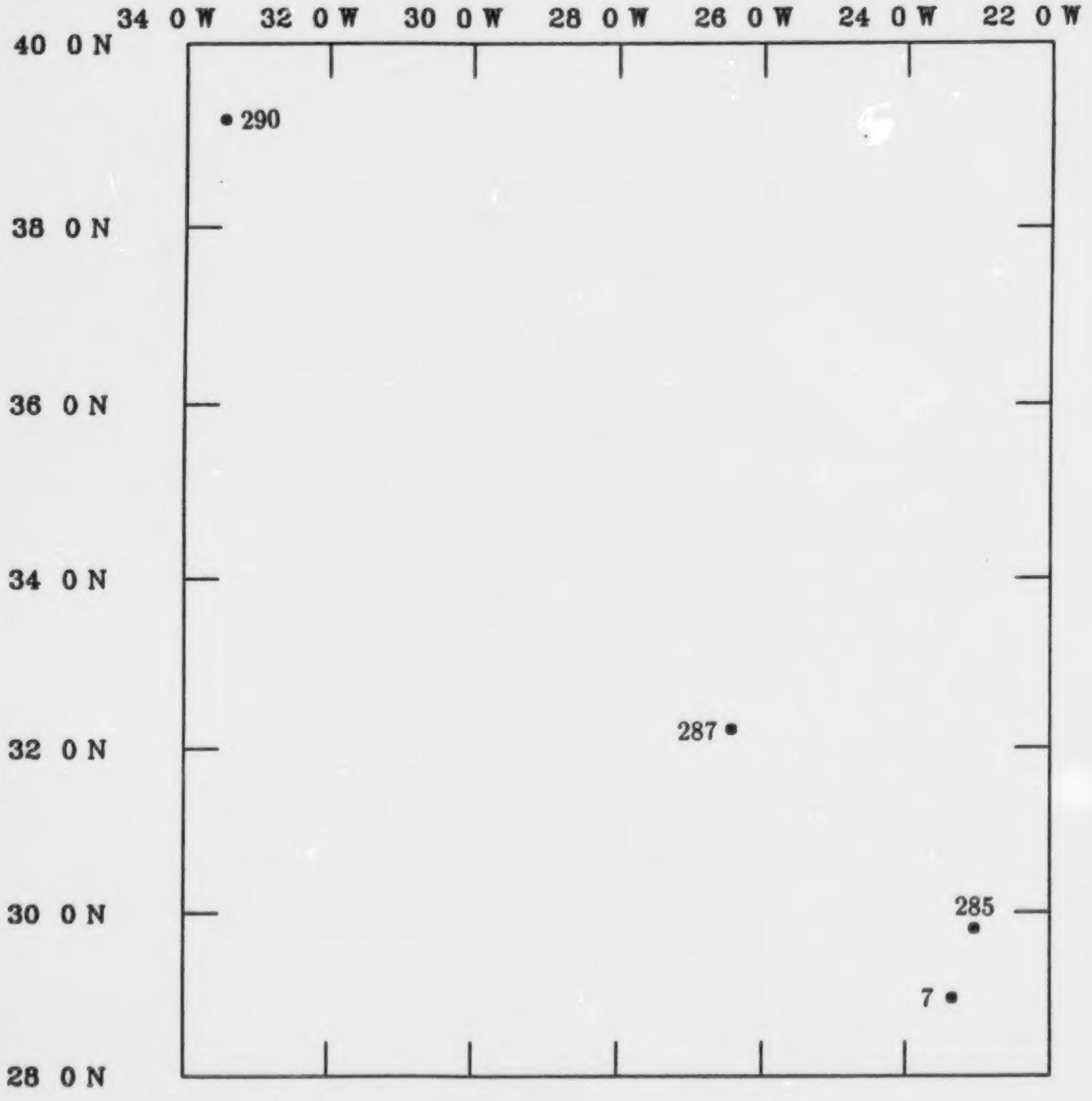


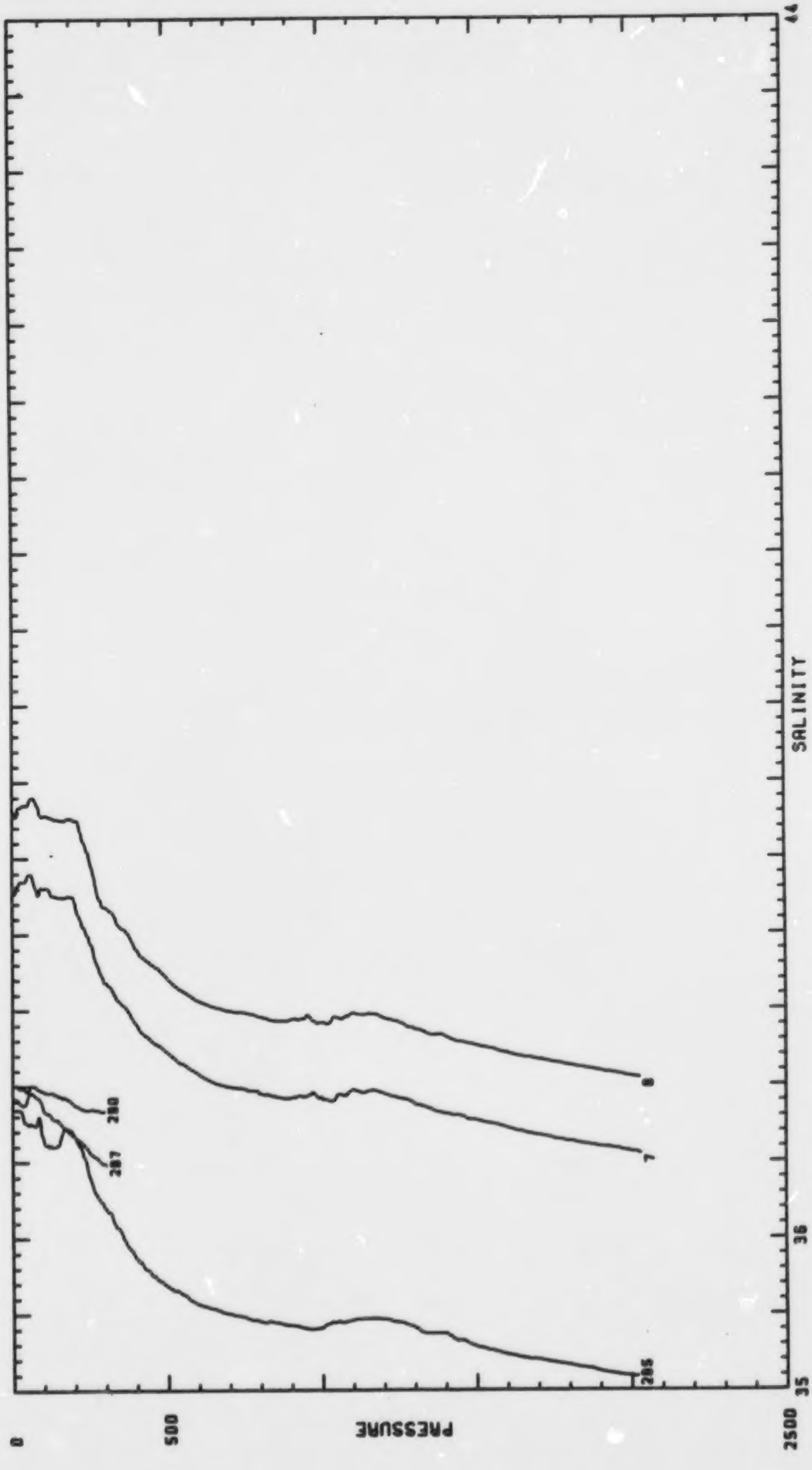

PRESSURE
0
500
2500
SALINITY
35
36
44

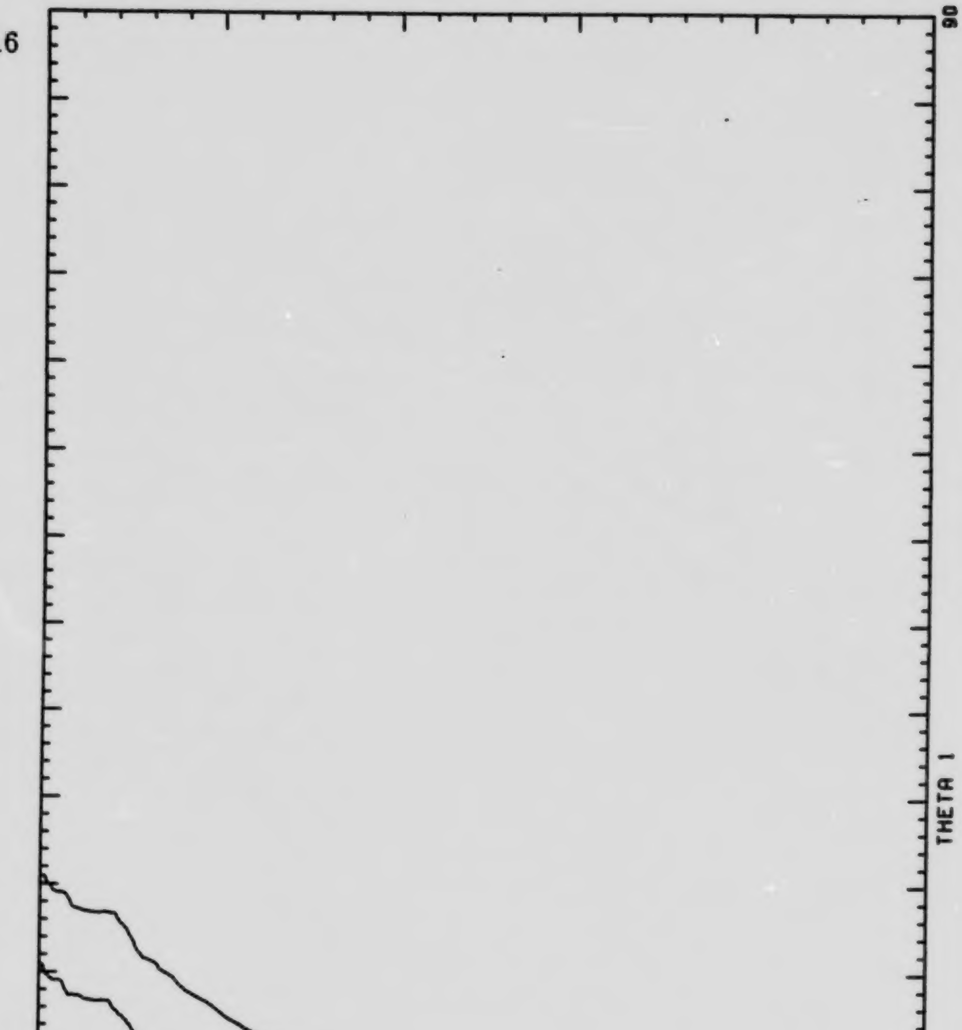

PRESSURE
0
500
2500
THETA 1
0
10
90
283
281
280
278
277
275
272
267
266
264
262
258
255
253

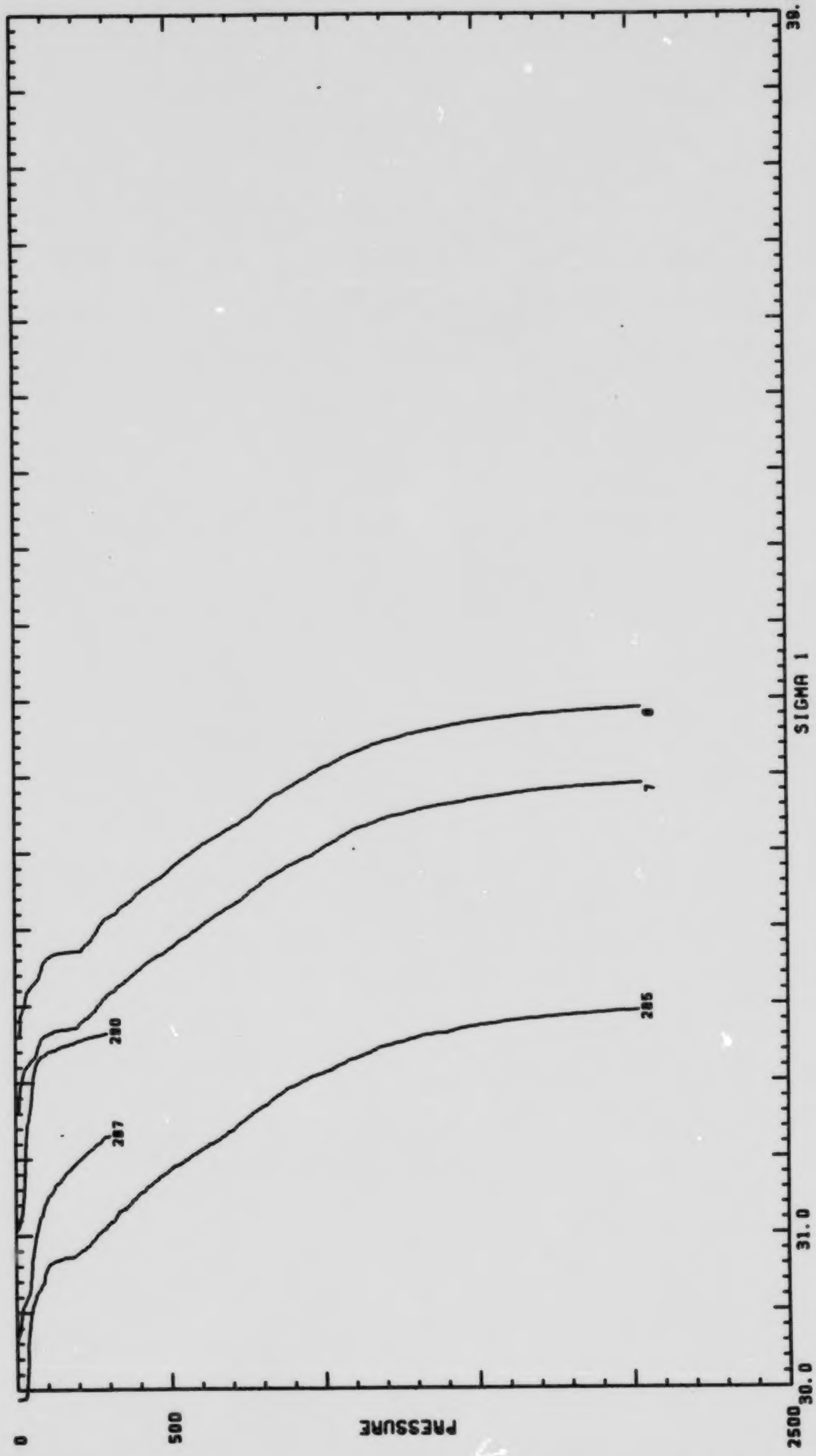

PRESSURE
SIGMA 1
0
500
2500
30.0
31.0
30.0
281
280
277
275
272
255

Survey II : June 1985




SALINITY
35
36
44
PRESSURE
0
500
2500
285
287
7
8


PRESSURE
0
500
2500
THETA 1
0
10
90
8
7
290
287
285


PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
8
7
285
280
287

SURVEY III

OCTOBER 1985

RV OCEANUS

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
201010	27° 12.8′	23° 44.7′	26275	296	27.4
201021	27° 11.5′	23° 45.4′	28569	296	24.9
201030	27° 11.3′	23° 45.5′	29119	296	24.5
201041	27° 11.1′	23° 45.6′	29414	296	24.1
201050	27° 10.2′	23° 45.1′	30567	296	22.5
201061	27° 9.8′	23° 44.8′	31549	296	21.9
201070	27° 9.2′	23° 45.6′	32674	296	20.6
201081	27° 8.8′	23° 45.8′	33630	296	19.8
201090	27° 8.2′	23° 46.1′	34794	296	18.7
201101	27° 6.5′	23° 46.6′	36855	296	15.5
201110	27° 6.2′	23° 46.9′	37834	296	15.0
201121	27° 5.7′	23° 47.1′	38868	296	14.0
201130	27° 5.3′	23° 47.4′	39909	296	13.3
201141	27° 4.8′	23° 47.6′	40884	296	12.5
201151	27° 4.0′	23° 48.0′	42675	296	11.1
201160	27° 3.3′	23° 48.4′	44285	296	10.1
201171	27° 2.5′	23° 48.8′	46139	296	8.9
201180	27° 2.2′	23° 49.0′	47000	296	8.6
201191	27° 1.6′	23° 49.3′	48285	296	7.9
201200	27° 1.2′	23° 49.8′	49771	296	7.9
201211	27° .8′	23° 50.1′	50802	296	7.8
201220	26° 59.0′	23° 53.3′	51949	296	11.4
202011	26° 59.1′	23° 52.5′	53427	296	10.2
202020	26° 58.6′	23° 51.8′	54776	296	8.9
202031	26° 57.9′	23° 51.8′	56251	296	8.9
202040	26° 57.4′	23° 52.0′	57428	296	9.4
202051	26° 56.9′	23° 52.3′	58872	296	10.1
202060	26° 56.2′	23° 52.8′	60486	296	11.3
202071	26° 55.4′	23° 53.4′	62369	296	12.8
202080	26° 54.8′	23° 53.8′	63737	296	13.9
202091	26° 54.0′	23° 54.4′	65520	296	15.5
202100	26° 53.5′	23° 54.8′	66959	296	16.5
202111	26° 52.8′	23° 55.2′	69024	296	17.8
202120	26° 52.7′	23° 55.5′	70349	296	18.4
203011	26° 51.4′	23° 56.2′	72818	296	20.7
203020	26° 50.9′	23° 56.3′	74091	296	21.5
203031	26° 49.9′	23° 57.1′	75976	296	23.7
203040	26° 49.6′	23° 57.2′	77030	296	24.2
203051	26° 48.9′	23° 57.4′	78774	296	25.3
203060	26° 48.5′	23° 57.7′	79909	296	26.2
203071	26° 47.8′	23° 58.2′	81732	296	27.7
203080	26° 47.4′	23° 58.7′	82960	296	28.9
203091	26° 46.7′	23° 59.6′	84833	296	30.9
203100	26° 46.3′	24° .4′	86087	296	32.4
203111	26° 45.3′	24° 1.0′	1597	297	34.4

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
203120	26° 44.7′	24° 1.3′	2739	297	35.5
204011	26° 43.6′	24° 1.6′	4784	297	37.4
204020	26° 42.8′	24° 1.6′	6267	297	38.5
204031	26° 41.9′	24° 1.9′	8134	297	40.1
204040	26° 41.4′	24° 2.2′	9201	297	41.1
204051	26° 41.0′	24° 2.5′	10289	297	42.0
204060	26° 40.5′	24° 3.0′	11598	297	43.3
204071	26° 39.5′	24° 3.8′	13988	297	45.6
211010	27° 11.6′	24° 4.8′	29126	297	41.3
211021	27° 9.5′	24° 3.7′	31067	297	37.6
211030	27° 8.4′	24° 3.4′	32002	297	36.0
212011	27° 7.2′	24° 3.0′	33160	297	34.3
221010	27° 6.4′	24° 3.0′	42576	297	33.9
221021	27° 6.2′	24° 2.4′	44136	297	32.9
221030	27° 6.1′	24° 2.0′	44906	297	32.3
221041	27° 5.9′	24° 1.7′	45694	297	31.7
221050	27° 5.8′	24° 1.2′	46636	297	30.9
221061	27° 5.4′	24° .9′	47387	297	30.2
221070	27° 5.1′	24° .6′	48165	297	29.5
221081	27° 4.1′	23° 59.8′	49036	297	27.5
221090	27° 4.5′	23° 59.7′	50215	297	27.7
221101	27° 3.8′	23° 58.8′	52199	297	25.9
221110	27° 3.6′	23° 58.8′	53399	297	25.8
221121	27° 3.0′	23° 58.0′	54562	297	24.2
221130	27° 2.4′	23° 57.2′	56176	297	22.6
222011	27° 1.6′	23° 55.9′	57886	297	20.1
222020	27° 1.1′	23° 55.6′	59457	297	19.3
222031	26° 59.9′	23° 54.5′	62133	297	17.1
222040	26° 59.0′	23° 53.5′	64042	297	15.2
222051	26° 58.3′	23° 52.7′	65729	297	13.8
222060	26° 57.9′	23° 51.4′	67804	297	11.7
222071	26° 57.4′	23° 49.5′	70969	297	8.7
222080	26° 57.8′	23° 48.6′	72806	297	7.2
222091	26° 58.1′	23° 47.9′	74110	297	6.2
223010	26° 58.4′	23° 47.1′	75833	297	5.0
223021	26° 58.7′	23° 46.6′	76938	297	4.5
223030	26° 59.2′	23° 46.1′	78221	297	4.3
223041	26° 59.8′	23° 45.1′	80458	297	4.3
223050	27° .3′	23° 44.5′	81954	297	5.0
223061	27° .6′	23° 44.1′	83001	297	5.5
223070	27° 1.0′	23° 43.6′	84187	297	6.3
223081	27° 1.7′	23° 42.5′	86386	297	7.9
223090	27° 2.1′	23° 42.0′	1164	298	8.9
223101	27° 2.5′	23° 41.6′	2242	298	9.8
223110	27° 2.9′	23° 41.1′	3432	298	10.8

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
223121	27° 3.7′	23° 40.1′	5733	298	12.9
224010	27° 4.2′	23° 39.5′	7325	298	14.1
224021	27° 4.6′	23° 38.8′	8707	298	15.4
224030	27° 5.0′	23° 38.0′	10211	298	16.7
224041	27° 5.8′	23° 36.8′	12848	298	19.0
224050	27° 6.1′	23° 36.2′	14125	298	20.0
224061	27° 6.5′	23° 35.7′	15268	298	21.1
224070	27° 6.8′	23° 35.2′	16350	298	22.0
224081	27° 7.3′	23° 34.4′	18449	298	23.6
224090	27° 7.6′	23° 33.9′	19770	298	24.5
224101	27° 7.9′	23° 33.4′	21164	298	25.4
224110	27° 8.0′	23° 33.0′	22625	298	26.0
225011	27° 9.6′	23° 30.6′	25797	298	30.8
225020	27° 10.5′	23° 30.0′	27243	298	32.7
225031	27° 10.6′	23° 29.4′	28553	298	33.4
225040	27° 10.9′	23° 28.9′	29994	298	34.4
225051	27° 10.9′	23° 27.7′	32498	298	35.7
225060	27° 11.2′	23° 26.7′	33612	298	37.3
225071	27° 11.7′	23° 26.9′	34667	298	37.7
225080	27° 12.2′	23° 26.9′	35788	298	38.3
225091	27° 12.5′	23° 26.6′	36701	298	39.0
225100	27° 12.8′	23° 26.4′	37480	298	39.7
225111	27° 13.5′	23° 25.6′	39810	298	41.5
231010	26° 58.6′	23° 50.6′	53059	298	13.0
231021	27° .8′	23° 50.5′	54770	298	14.2
231030	26° 59.7′	23° 49.6′	55848	298	12.0
231041	26° 59.4′	23° 48.1′	57683	298	9.6
231050	26° 59.2′	23° 47.5′	58838	298	8.6
231061	26° 59.3′	23° 46.4′	61416	298	7.1
241010	26° 45.2′	23° 47.0′	26485	299	24.0
241021	26° 44.9′	23° 44.9′	28923	299	23.4
251010	26° 45.0′	23° 34.4′	37321	299	25.3
251021	26° 44.9′	23° 34.3′	39677	299	25.4
261010	26° 38.8′	23° 41.0′	45624	299	33.9
261021	26° 39.6′	23° 41.0′	48323	299	32.4
271010	27° 1.1′	24° 5.1′	11181	300	42.0
271021	27° 1.0′	24° 5.4′	14134	300	42.6
281010	27° 1.0′	24° 1.3′	28954	300	36.5
282011	27° 1.0′	24° 1.4′	32361	300	36.8
291010	26° 59.9′	23° 56.7′	44435	300	29.2
291021	26° 59.6′	23° 57.1′	47778	300	29.8
301010	26° 59.9′	23° 52.4′	58723	300	22.8
301021	26° 59.8′	23° 52.7′	62202	300	23.3
311010	26° 57.8′	23° 46.8′	75804	300	13.5
312011	26° 57.5′	23° 47.3′	79480	300	14.4

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
321010	26° 57.9′	23° 44.0′	5448	301	9.6
321021	26° 57.1′	23° 43.5′	9311	301	8.6
332010	26° 46.0′	23° 44.5′	28540	301	22.4
332021	26° 46.7′	23° 44.2′	29496	301	21.0
332030	26° 46.9′	23° 43.8′	30840	301	20.4
332041	26° 47.8′	23° 44.4′	33382	301	19.5
332050	26° 48.1′	23° 44.5′	34489	301	19.2
332061	26° 48.8′	23° 45.6′	35715	301	19.3
342010	26° 50.4′	23° 46.2′	40355	301	18.1
342021	26° 50.4′	23° 46.2′	40670	301	18.1
343010	26° 50.5′	23° 46.6′	47558	301	18.7
343021	26° 52.4′	23° 47.0′	49374	301	17.5
343030	26° 53.0′	23° 47.2′	50455	301	17.4
343041	26° 53.1′	23° 47.1′	51416	301	17.2
343050	26° 53.6′	23° 47.3′	52576	301	17.2
344011	26° 54.2′	23° 47.7′	54078	301	17.6
344020	26° 54.7′	23° 47.8′	55205	301	17.6
344031	26° 56.5′	23° 48.9′	57027	301	19.2
344040	26° 56.6′	23° 48.2′	58291	301	18.1
344051	26° 56.5′	23° 47.5′	59310	301	16.9
344060	26° 56.3′	23° 46.8′	60350	301	15.8
344071	26° 56.2′	23° 46.1′	61244	301	14.7
344080	26° 56.0′	23° 45.3′	62476	301	13.4
344091	26° 55.9′	23° 43.9′	64654	301	11.2
344100	26° 55.8′	23° 43.2′	65965	301	10.1
344111	26° 55.7′	23° 42.7′	67013	301	9.4
344120	26° 55.5′	23° 41.8′	68548	301	8.0
344131	26° 55.5′	23° 41.1′	69615	301	6.9
345010	26° 55.3′	23° 40.1′	71232	301	5.5
345021	26° 55.2′	23° 38.6′	73428	301	3.5
345030	26° 55.2′	23° 37.4′	75053	301	2.3
345041	26° 55.2′	23° 36.6′	76196	301	2.2
345050	26° 55.2′	23° 35.7′	77492	301	2.9
345061	26° 55.3′	23° 34.9′	78517	301	3.8
345070	26° 55.4′	23° 33.9′	79956	301	5.1
345081	26° 55.3′	23° 32.4′	82052	301	7.5
345090	26° 55.2′	23° 31.4′	83411	301	9.1
345101	26° 55.0′	23° 30.7′	84461	301	10.2
345110	26° 54.7′	23° 29.7′	85760	301	11.9
345121	26° 54.5′	23° 29.0′	361	302	13.1
345130	26° 54.6′	23° 28.4′	1717	302	14.0
345141	26° 54.4′	23° 27.1′	3768	302	16.1
345150	26° 54.4′	23° 26.7′	4930	302	16.7
345161	26° 54.2′	23° 25.7′	6153	302	18.3
345170	26° 54.0′	23° 24.9′	7195	302	19.7

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
345181	26° 53.9′	23° 24.1′	8232	302	21.0
345190	26° 53.7′	23° 23.3′	9291	302	22.3
345201	26° 53.5′	23° 21.9′	11429	302	24.6
351010	26° 57.3′	23° 42.6′	33059	302	11.1
351021	26° 56.9′	23° 43.7′	35774	302	12.9
361010	26° 57.4′	23° 47.7′	46318	302	19.9
361021	26° 57.2′	23° 47.0′	49069	302	18.9
411010	27° 25.1′	22° 58.9′	26714	303	79.7
411021	27° 26.8′	22° 59.5′	28821	303	81.1
421010	27° 49.7′	23° .7′	40121	303	114.2
421021	27° 49.9′	23° .2′	41987	303	115.0
431010	28° 14.8′	23° .1′	52729	303	157.3
431021	28° 14.9′	23° .0′	54420	303	157.5
471010	29° 55.2′	22° 59.8′	16686	304	—
471021	29° 55.1′	22° 59.5′	19729	304	—
481010	30° 21.8′	22° 58.4′	42556	304	—
481021	30° 22.5′	22° 58.7′	44434	304	—
491010	30° 45.2′	22° 59.4′	54360	304	—
491021	30° 45.5′	22° 59.0′	56381	304	—
501010	31° .2′	23° .0′	63836	304	—
501021	31° .9′	22° 59.5′	66161	304	—
511010	31° 25.3′	22° 59.8′	76993	304	—
511021	31° 25.7′	22° 59.2′	79275	304	—
521010	31° 49.6′	22° 58.4′	3759	305	—
522011	31° 50.5′	22° 58.4′	6086	305	—
531010	32° 15.1′	22° 59.3′	16986	305	—
531021	32° 15.6′	22° 58.9′	19154	305	—
541010	32° 36.2′	23° 4.4′	42346	305	—
541021	32° 36.0′	23° 4.2′	44384	305	—
551010	33° .4′	23° .3′	55449	305	—
551021	33° .6′	23° .1′	57426	305	—
561010	32° 59.7′	22° 30.4′	68230	305	—
561021	33° .1′	22° 30.8′	70858	305	—
571010	33° .2′	22° .2′	81904	305	—
571021	33° .4′	21° 59.3′	83923	305	—
581010	32° 37.5′	22° .2′	7824	306	—
581021	32° 36.7′	22° .5′	9846	306	—
591010	32° 16.0′	22° .1′	20197	306	—
591021	32° 16.0′	22° .1′	22359	306	—
601010	31° 50.3′	22° 1.1′	33321	306	—
601021	31° 50.1′	22° 1.1′	35262	306	—
611010	31° 26.0′	22° 1.7′	45504	306	—
611021	31° 25.4′	22° 1.2′	47142	306	—
621010	30° 58.3′	22° .1′	58192	306	—
621021	30° 58.3′	22° 1.6′	60103	306	—

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
631010	31° .4′	22° 29.7′	70944	306	—
631021	31° .5′	22° 28.4′	73048	306	—
641010	31° .2′	23° 29.7′	6463	307	—
641021	31° .5′	23° 29.4′	8601	307	—
651010	31° 25.3′	23° 29.7′	19668	307	—
651021	31° 25.6′	23° 29.4′	21588	307	—
661010	31° 49.6′	23° 29.2′	32667	307	—
661021	31° 49.2′	23° 28.6′	34751	307	—
671010	32° 15.4′	23° 30.6′	45500	307	—
671021	32° 15.8′	23° 30.4′	47747	307	—
691010	32° 59.5′	23° 29.6′	72078	307	—
691021	32° 58.7′	23° 29.1′	75520	307	—
701010	33° 24.2′	23° 30.9′	3779	308	—
701021	33° 23.0′	23° 30.8′	5963	308	—
701030	33° 22.0′	23° 31.9′	7030	308	—
701041	33° 22.5′	23° 31.9′	8046	308	—
701050	33° 21.9′	23° 32.6′	9389	308	—
701061	33° 21.2′	23° 33.1′	11330	308	—
711010	33° 36.4′	23° 31.8′	21680	308	—
711021	33° 35.6′	23° 34.1′	24971	308	—
721010	33° 46.6′	23° 29.7′	33673	308	—
722011	33° 46.9′	23° 31.4′	35805	308	—
731010	33° 46.8′	23° 18.6′	43729	308	—
731021	33° 46.4′	23° 19.3′	45425	308	—
741010	33° 46.6′	23° 39.5′	55813	308	—
741021	33° 46.0′	23° 40.4′	57780	308	—
751010	33° 46.5′	23° 50.8′	66223	308	—
751021	33° 45.9′	23° 51.0′	68783	308	—
761010	33° 45.4′	24° 2.6′	76723	308	—
761021	33° 43.8′	24° 2.0′	78692	308	—
771010	33° 43.8′	24° 8.9′	543	309	—
771021	33° 45.7′	24° 14.7′	2353	309	—
781010	33° 58.4′	24° 1.0′	14984	309	—
781021	33° 57.7′	24° 1.9′	17774	309	—
791010	34° 4.9′	23° 58.0′	28955	309	—
791021	34° 4.9′	23° 58.0′	31481	309	—
801010	33° 55.8′	24° .1′	41586	309	—
801021	33° 55.6′	24° .5′	43287	309	—
811010	34° 12.0′	23° 46.5′	53499	309	—
811021	34° 10.8′	23° 47.0′	56176	309	—
811030	34° 10.2′	23° 47.3′	57421	309	—
811041	34° 9.0′	23° 48.1′	59950	309	—
811050	34° 8.5′	23° 48.4′	61315	309	—
811061	34° 8.0′	23° 48.7′	62638	309	—
811070	34° 7.5′	23° 49.2′	63852	309	—

STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
811090	34° 5.9′	23° 51.0′	68123	309	—
811101	34° 4.3′	23° 52.6′	71456	309	—
811110	34° 3.4′	23° 53.6′	73136	309	—
811121	34° 2.7′	23° 54.8′	75251	309	—
811130	34° .7′	23° 55.4′	76856	309	—
811141	34° .3′	23° 58.6′	78900	309	—
811150	34° .2′	23° 57.8′	80528	309	—
811161	33° 58.9′	23° 59.4′	83494	309	—
811170	33° 57.6′	24° .8′	85450	309	—
811181	33° 56.4′	24° 1.9′	871	310	—
811190	33° 56.0′	24° 2.5′	2374	310	—
811201	33° 55.4′	24° 3.4′	4239	310	—
811210	33° 54.7′	24° 4.0′	5878	310	—
811221	33° 53.3′	24° 4.8′	8860	310	—
811230	33° 52.5′	24° 6.1′	10740	310	—
811241	33° 51.9′	24° 7.1′	12934	310	—
811250	33° 51.1′	24° 7.2′	14244	310	—
811261	33° 50.2′	24° 9.4′	17109	310	—
812010	33° 48.4′	24° 12.1′	22959	310	—
812021	33° 47.6′	24° 13.0′	25740	310	—
812030	33° 46.9′	24° 13.4′	27364	310	—
812041	33° 45.9′	24° 13.0′	29493	310	—
812050	33° 45.3′	24° 13.8′	30853	310	—
812061	33° 44.4′	24° 14.7′	32769	310	—
812070	33° 44.0′	24° 14.9′	33719	310	—
812081	33° 42.9′	24° 16.1′	35815	310	—
812090	33° 42.5′	24° 16.4′	36982	310	—
812101	33° 42.0′	24° 17.0′	38470	310	—
812110	33° 41.6′	24° 17.3′	39512	310	—
812121	33° 40.9′	24° 17.8′	41308	310	—
812130	33° 40.5′	24° 18.1′	42381	310	—
812141	33° 39.7′	24° 18.8′	44425	310	—
812150	33° 39.2′	24° 19.2′	45553	310	—
812161	33° 38.6′	24° 19.8′	47077	310	—
812170	33° 38.1′	24° 20.1′	48408	310	—
812181	33° 37.4′	24° 20.2′	50162	310	—
812190	33° 36.8′	24° 20.2′	51442	310	—
812201	33° 35.9′	24° 20.5′	53876	310	—
812210	33° 35.4′	24° 20.4′	55139	310	—
812221	33° 34.8′	24° 20.8′	56995	310	—
812230	33° 34.0′	24° 21.4′	58361	310	—
812241	33° 33.1′	24° 21.9′	60104	310	—
812250	33° 32.3′	24° 22.6′	61650	310	—
812261	33° 30.9′	24° 22.9′	64301	310	—
812270	33° 30.1′	24° 23.0′	65984	310	—

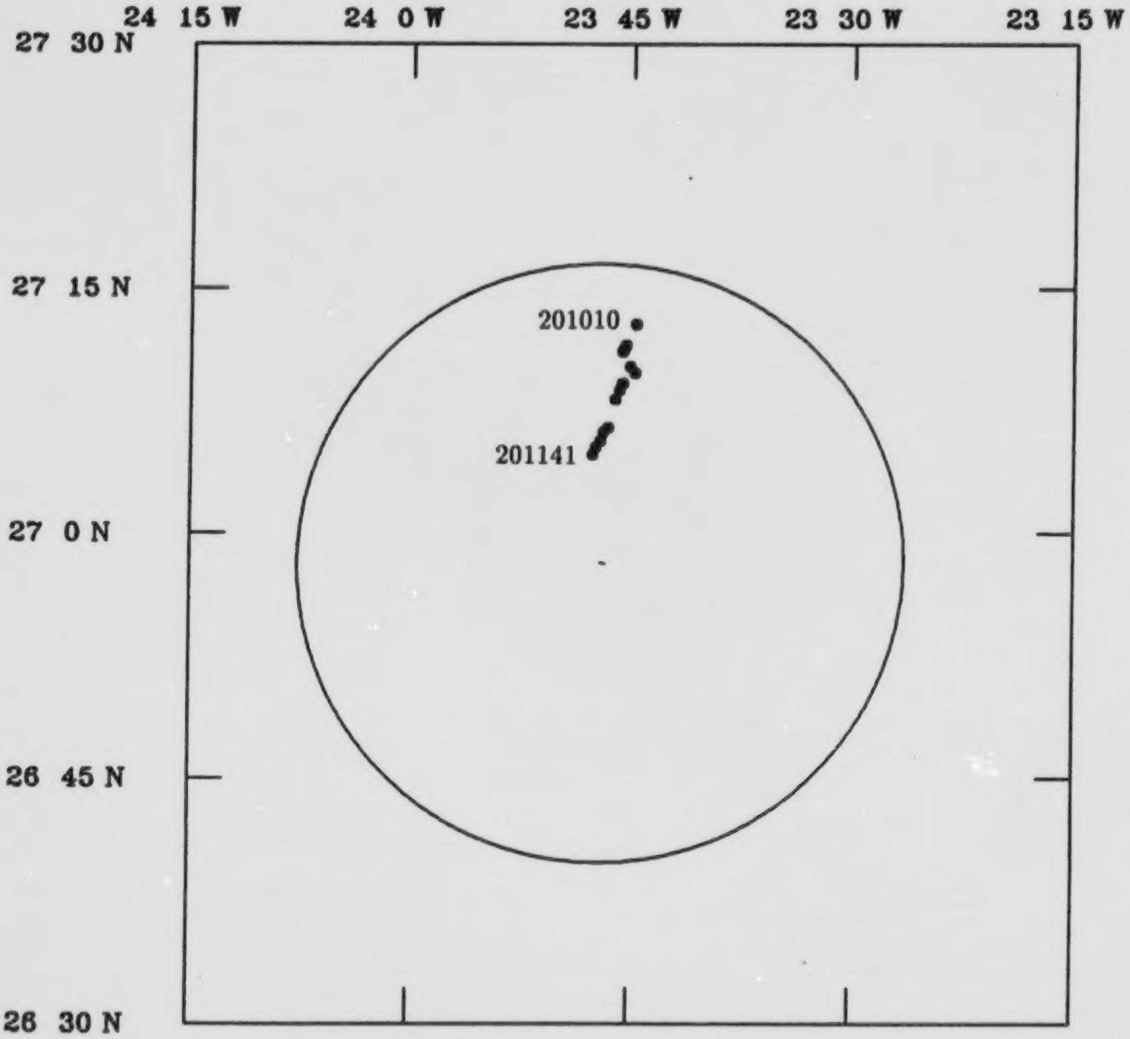
STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
812281	33° 28.1′	24° 25.2′	69876	310	—
821010	33° 54.9′	23° 57.2′	4512	311	—
821021	33° 55.3′	23° 57.2′	7198	311	—
831010	34° 1.2′	24° 6.1′	16056	311	—
831021	34° 1.8′	24° 6.2′	18718	311	—
841010	34° 1.6′	24° 14.3′	26917	311	—
841021	34° 1.1′	24° 12.9′	29954	311	—
861010	34° .1′	24° 9.5′	46814	311	—
861021	33° 59.4′	24° 8.8′	48840	311	—
861030	33° 58.4′	24° 6.8′	50858	311	—
861041	33° 56.8′	24° 5.3′	54484	311	—
861050	33° 55.1′	24° 3.9′	57011	311	—
861061	33° 53.9′	24° 2.8′	60125	311	—
861070	33° 53.3′	24° 1.9′	61866	311	—
861081	33° 52.3′	24° 1.0′	63999	311	—
861090	33° 51.4′	24° .0′	65844	311	—
861101	33° 50.8′	23° 59.6′	67700	311	—
861110	33° 49.6′	23° 58.3′	69614	311	—
861121	33° 48.4′	23° 57.8′	72401	311	—
861130	33° 47.7′	23° 57.4′	74335	311	—
861141	33° 46.5′	23° 56.6′	76851	311	—
861150	33° 45.9′	23° 56.2′	78375	311	—
861161	33° 45.1′	23° 55.6′	79879	311	—
861170	33° 44.4′	23° 55.2′	81305	311	—
861181	33° 43.3′	23° 54.4′	83511	311	—
861190	33° 42.6′	23° 53.8′	84892	311	—
861201	33° 41.9′	23° 53.2′	4	312	—
861210	33° 41.3′	23° 52.8′	1334	312	—
861221	33° 40.8′	23° 52.5′	2819	312	—
861230	33° 40.2′	23° 52.0′	4444	312	—
861241	33° 39.4′	23° 51.0′	7173	312	—
861250	33° 38.9′	23° 50.3′	8642	312	—
861261	33° 38.1′	23° 49.0′	10657	312	—
861270	33° 37.6′	23° 48.1′	12103	312	—
861281	33° 37.1′	23° 46.8′	14201	312	—
861290	33° 36.9′	23° 45.8′	15943	312	—
861301	33° 36.7′	23° 44.6′	18802	312	—
861310	33° 36.1′	23° 43.6′	20676	312	—
861321	33° 35.4′	23° 42.5′	22481	312	—
861330	33° 34.3′	23° 41.2′	25409	312	—
861341	33° 33.1′	23° 40.4′	27856	312	—
871010	33° 36.0′	24° 3.0′	15519	313	—
871021	33° 37.0′	24° 2.9′	19338	313	—
881010	33° 41.3′	24° 5.0′	83003	313	—
881021	33° 42.1′	24° 5.2′	85480	313	—

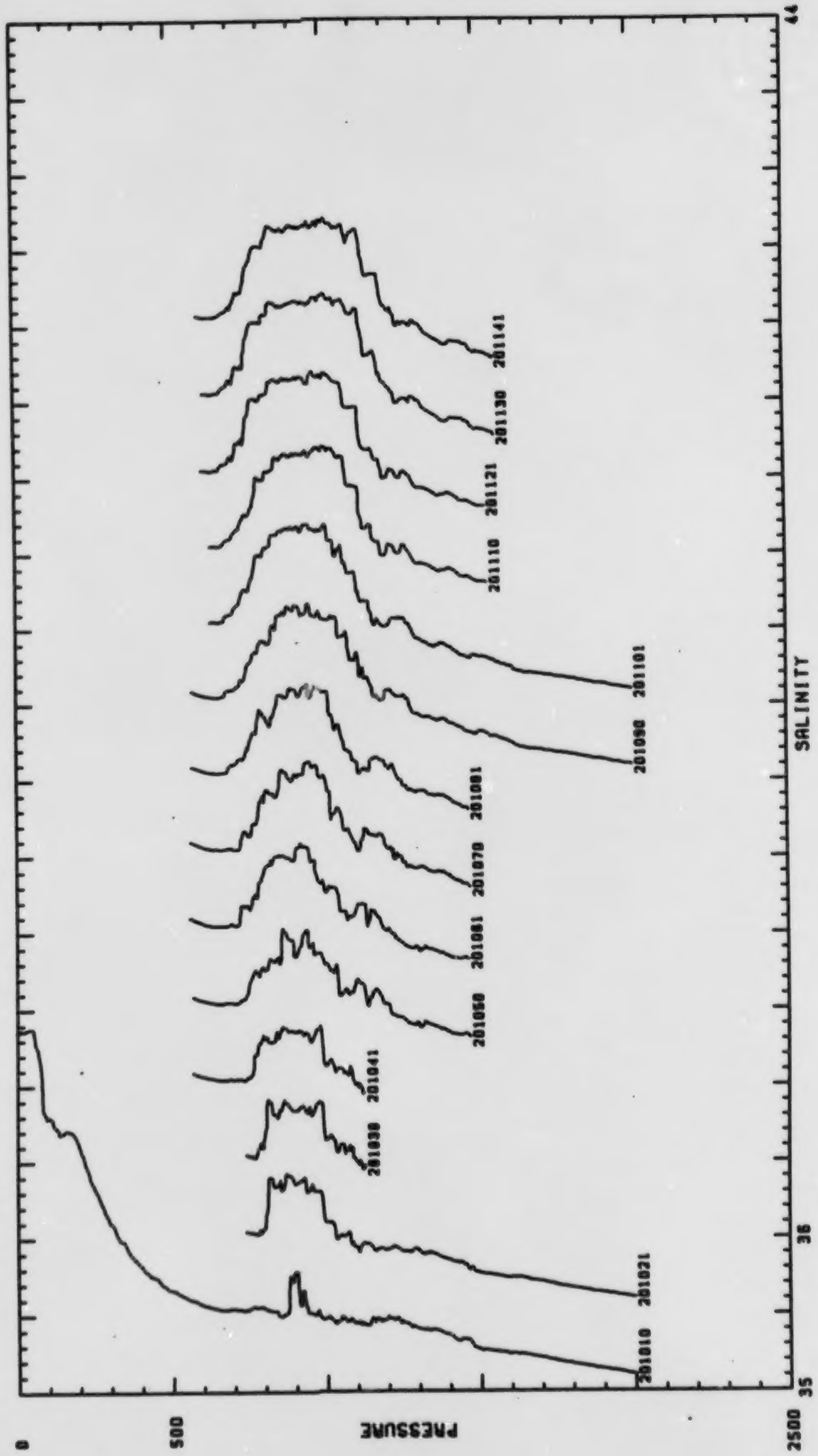
STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
891010	33° 44.9′	24° 3.9′	8083	314	—
891021	33° 45.2′	24° 1.9′	11248	314	—
901010	33° 47.9′	24° 3.5′	24512	314	—
901021	33° 47.7′	24° 2.8′	28116	314	—
911010	33° 53.5′	24° 3.0′	43122	314	—
911021	33° 53.7′	24° 3.0′	45696	314	—
921010	33° 56.7′	24° 4.3′	56371	314	—
921021	33° 56.7′	24° 5.4′	59524	314	—
931010	33° 27.8′	24° 4.2′	9361	315	—
931021	33° 28.1′	24° 3.6′	12719	315	—
941010	33° 31.0′	24° 4.9′	26615	315	—
942011	33° 30.4′	24° 4.7′	31265	315	—
951010	33° 37.8′	24° 4.4′	41480	315	—
951021	33° 37.2′	24° 6.1′	44179	315	—
961010	33° 48.4′	24° 4.9′	58582	315	—
961021	33° 49.9′	24° 5.0′	62871	315	—
971010	33° 19.6′	24° 4.4′	8670	316	—
971021	33° 20.0′	24° 3.5′	11754	316	—
981010	33° 23.0′	24° 4.9′	46307	316	—
981021	33° 23.7′	24° 5.6′	49068	316	—
991010	33° 28.8′	24° 4.7′	60900	316	—
991021	33° 29.5′	24° 4.2′	63991	316	—
1001010	33° 22.5′	24° 3.8′	76492	316	—
1001021	33° 23.2′	24° 3.8′	79144	316	—
1011010	33° 31.0′	24° 4.8′	8025	317	—
1011021	33° 31.5′	24° 4.1′	11254	317	—
1021010	33° 53.9′	24° 5.3′	45322	317	—
1021021	33° 54.5′	24° 5.3′	47683	317	—
1031010	33° 54.3′	24° 2.6′	58368	317	—
1031021	33° 55.3′	24° 3.1′	60679	317	—
1032010	33° 56.7′	24° 3.8′	63089	317	—
1032021	33° 57.7′	24° 4.2′	64882	317	—
1032030	33° 59.1′	24° 4.6′	66815	317	—
1032041	33° 59.6′	24° 5.1′	68573	317	—
1032050	34° 1.1′	24° 5.1′	70484	317	—
1032061	34° 1.6′	24° 5.6′	72482	317	—
1032070	34° 3.3′	24° 5.5′	74247	317	—
1032081	34° 4.2′	24° 6.5′	75888	317	—
1032090	34° 4.1′	24° 6.2′	77418	317	—
1032101	34° 4.8′	24° 6.2′	78841	317	—
1032110	34° 5.1′	24° 6.2′	80327	317	—
1032121	34° 6.0′	24° 6.4′	82152	317	—
1032130	34° 6.7′	24° 6.5′	83786	317	—
1032141	34° 7.7′	24° 6.8′	85213	317	—
1032150	34° 8.5′	24° 6.9′	388	318	—

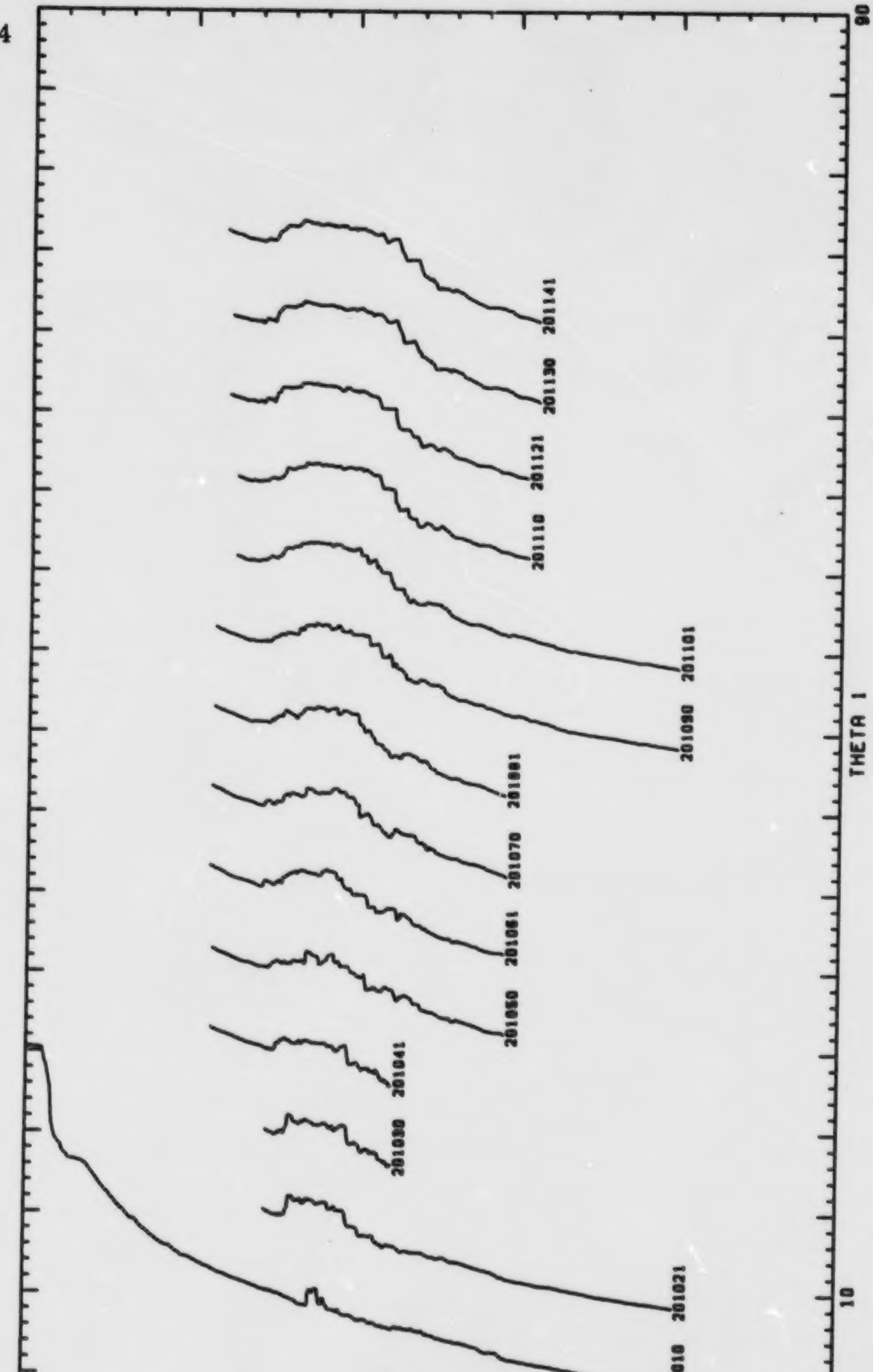
STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
1032161	34° 9.3′	24° 7.1′	2029	318	—
1033011	34° 12.1′	24° 7.7′	6149	318	—
1033020	34° 13.3′	24° 7.9′	8213	318	—
1033031	34° 14.3′	24° 8.1′	9979	318	—
1033040	34° 15.4′	24° 8.4′	11875	318	—
1033051	34° 17.2′	24° 8.9′	13572	318	—
1033060	34° 19.5′	24° 9.0′	16616	318	—
1033071	34° 25.4′	24° 8.8′	25260	318	—
1033080	34° 27.0′	24° 8.3′	27263	318	—
1033091	34° 29.7′	24° 8.0′	31777	318	—
1033100	34° 29.9′	24° 9.0′	33262	318	—
1034011	34° 30.7′	24° 9.4′	35421	318	—
1034020	34° 31.3′	24° 9.6′	36821	318	—
1034031	34° 32.3′	24° 9.9′	38506	318	—
1034040	34° 33.4′	24° 10.3′	39969	318	—
1034051	34° 34.8′	24° 10.9′	41723	318	—
1034060	34° 35.9′	24° 11.1′	42894	318	—
1034071	34° 37.0′	24° 11.5′	44664	318	—
1034080	34° 37.8′	24° 11.7′	45885	318	—
1034091	34° 38.6′	24° 11.8′	47488	318	—

INTENTIONALLY LEFT BLANCK

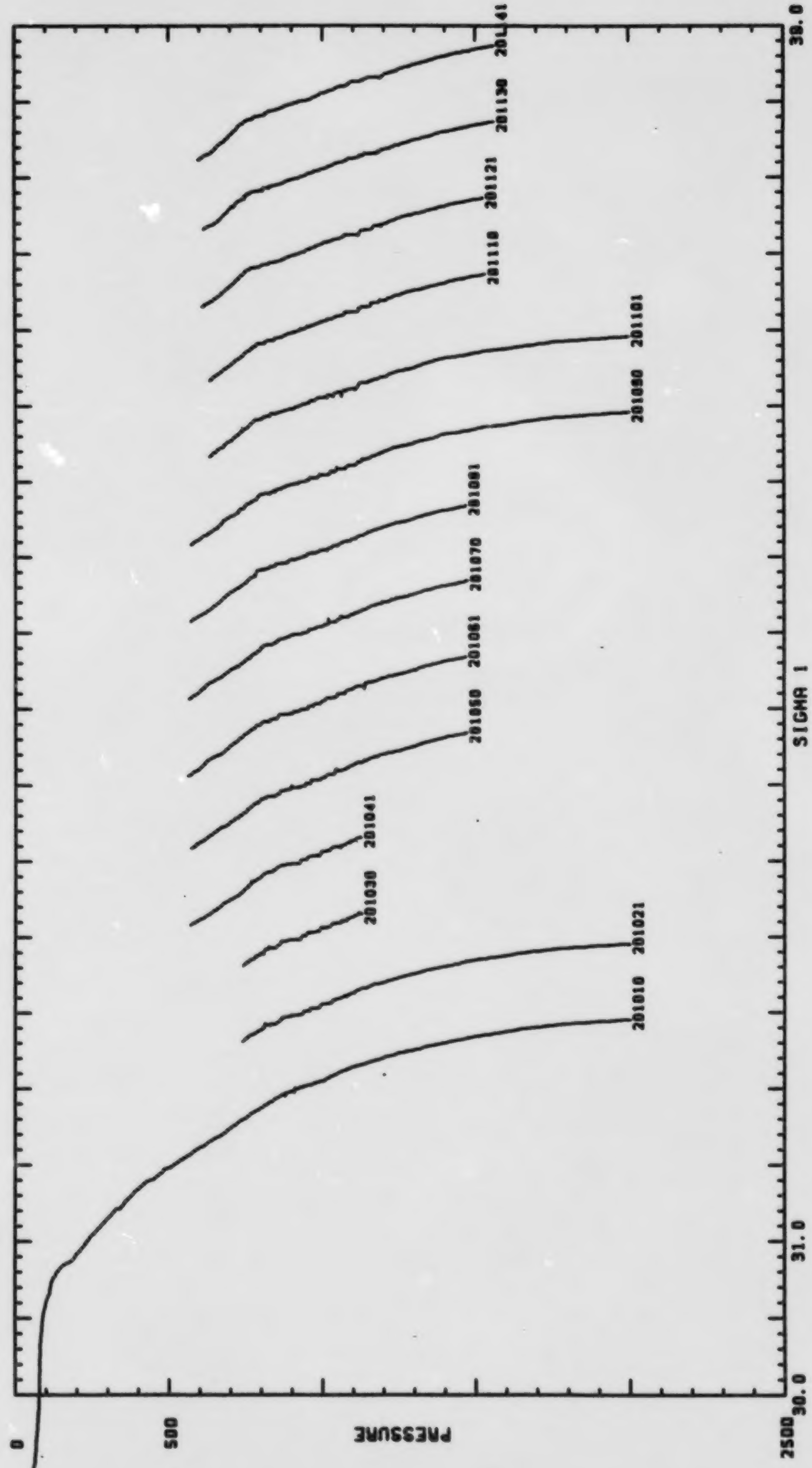
Survey III : October 1985



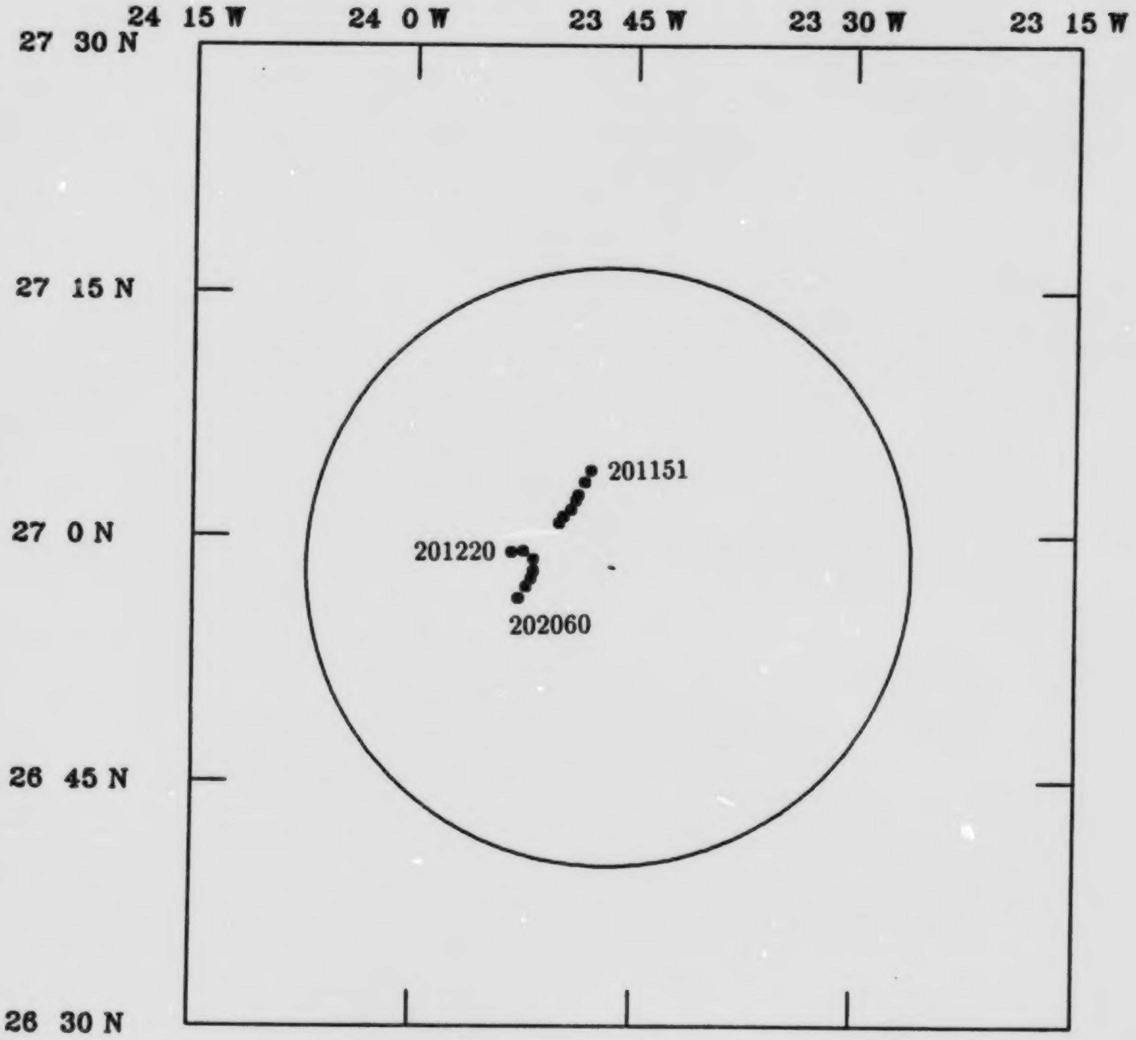

PRESSURE
0
500
2500
SALINITY
35
38
44
201141
201130
201121
201110
201101
201090
201081
201070
201061
201050
201041
201030
201021
201010

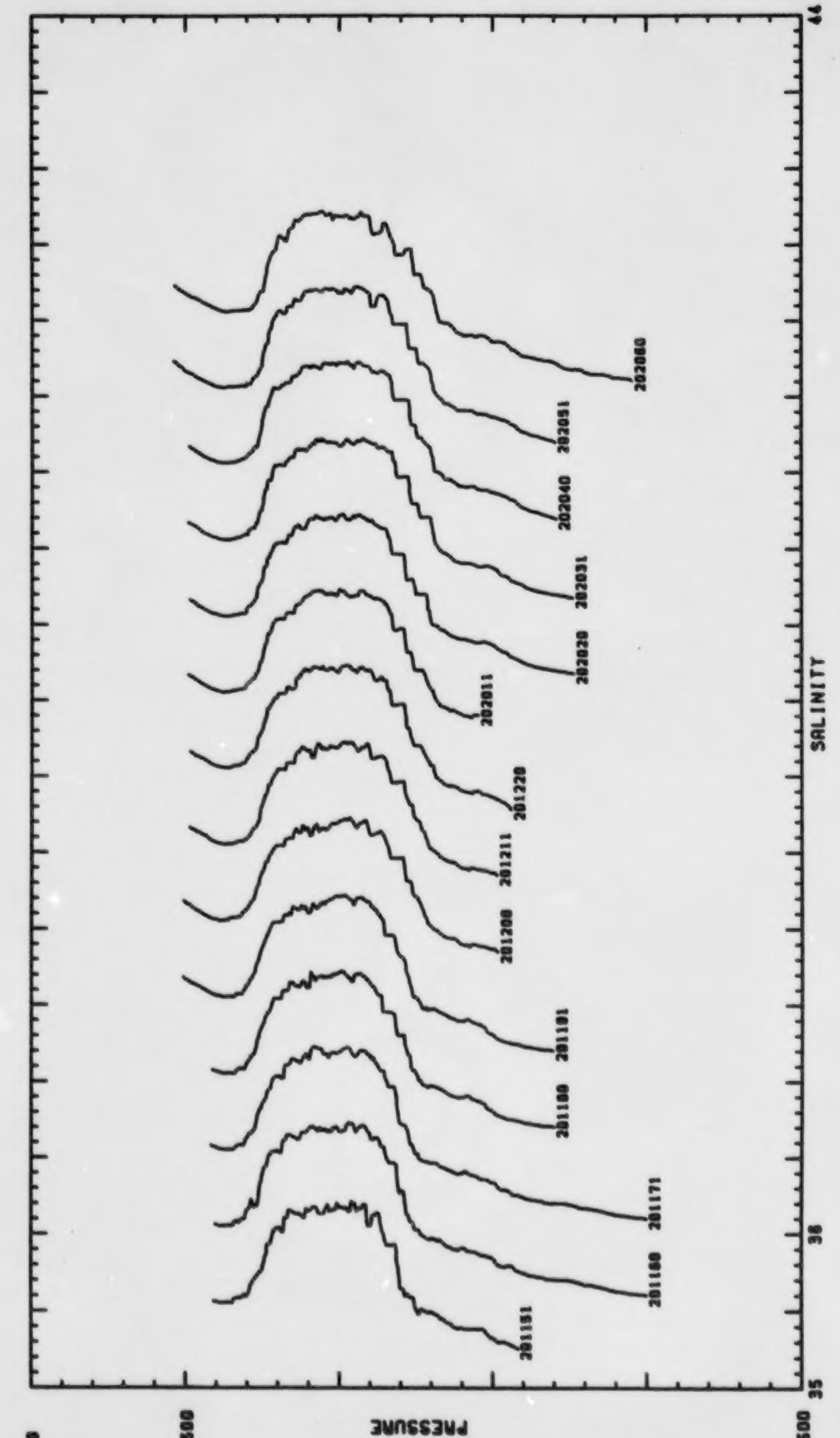


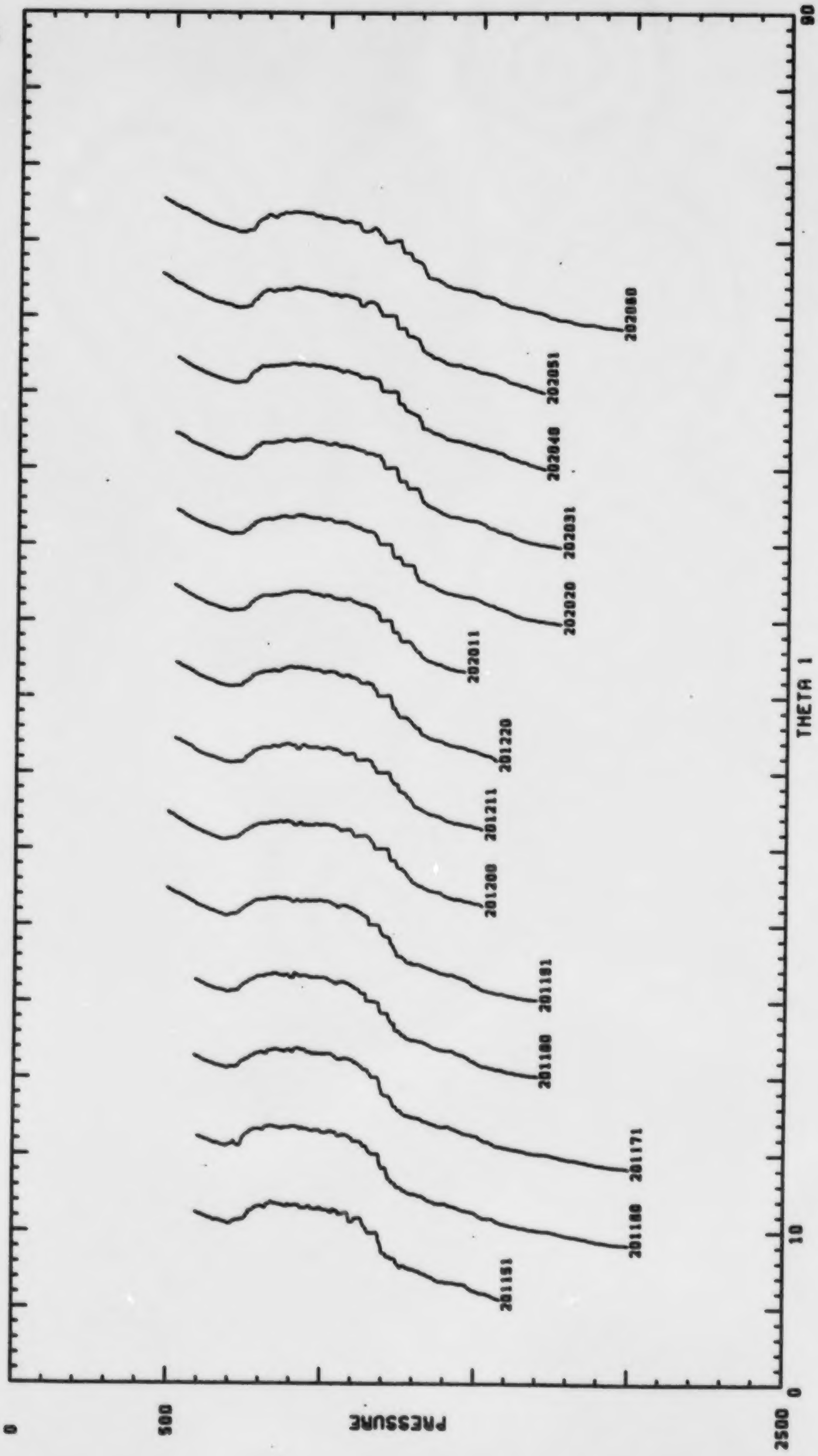
PRESSURE
0
500
2500
THETA I
0
10
90
201010
201021
201030
201041
201050
201061
201070
201081
201090
201101
201110
201121
201130
201141

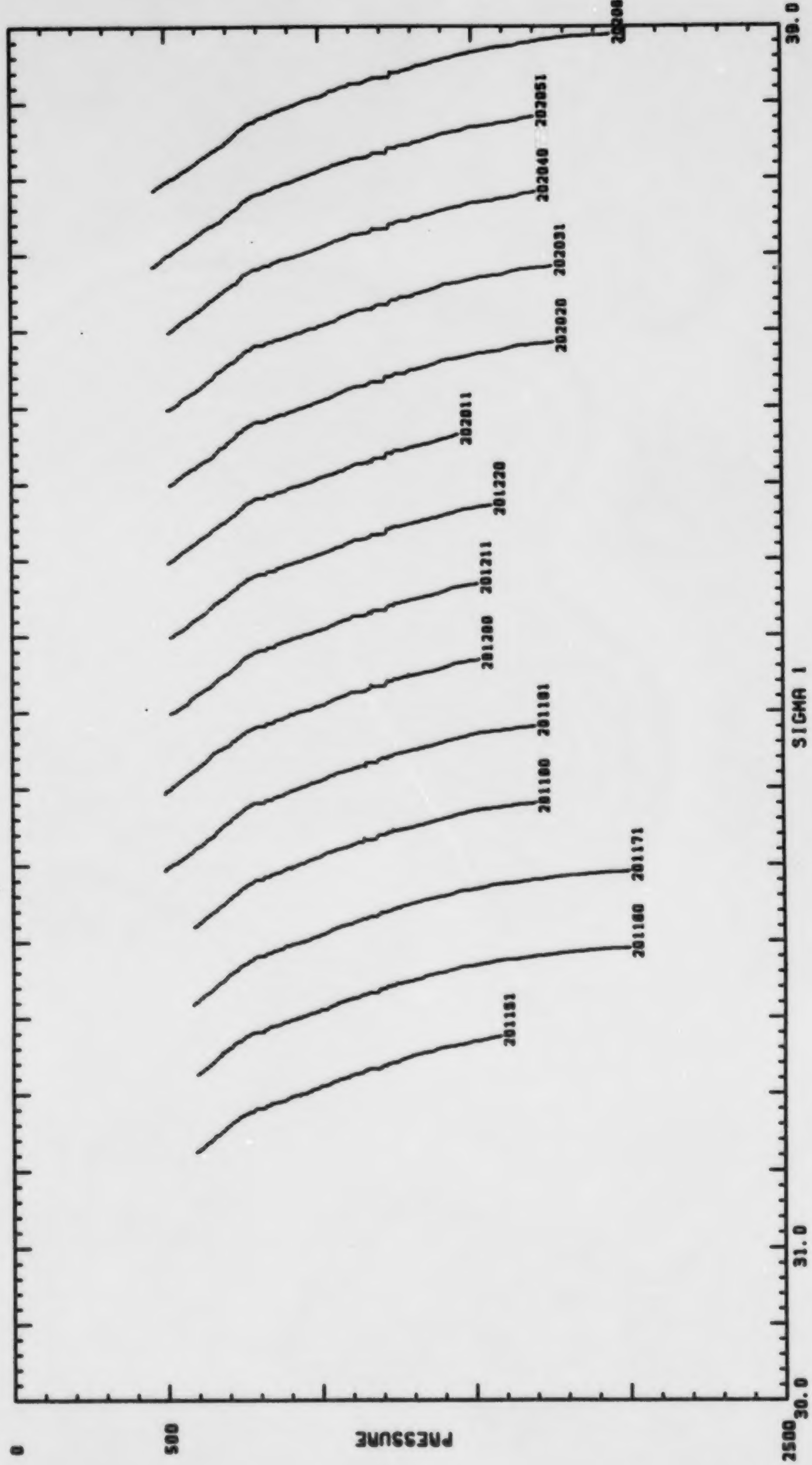

PRESSURE
SIGMA 1
0
500
2500
30.0
31.0
201010
201021
201030
201041
201050
201061
201070
201081
201090
201101
201110
201121
201130
201141

Survey III : October 1985

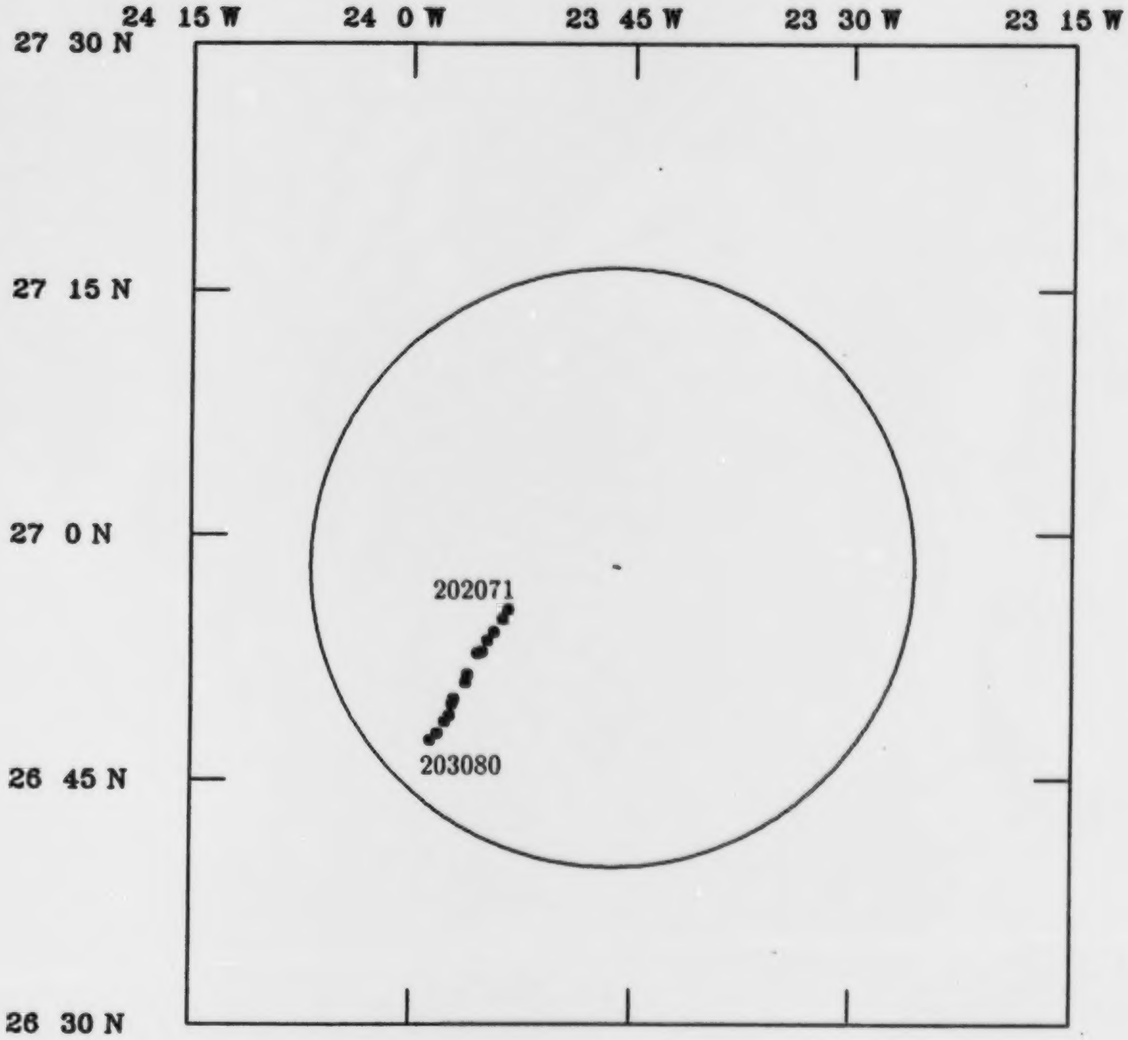


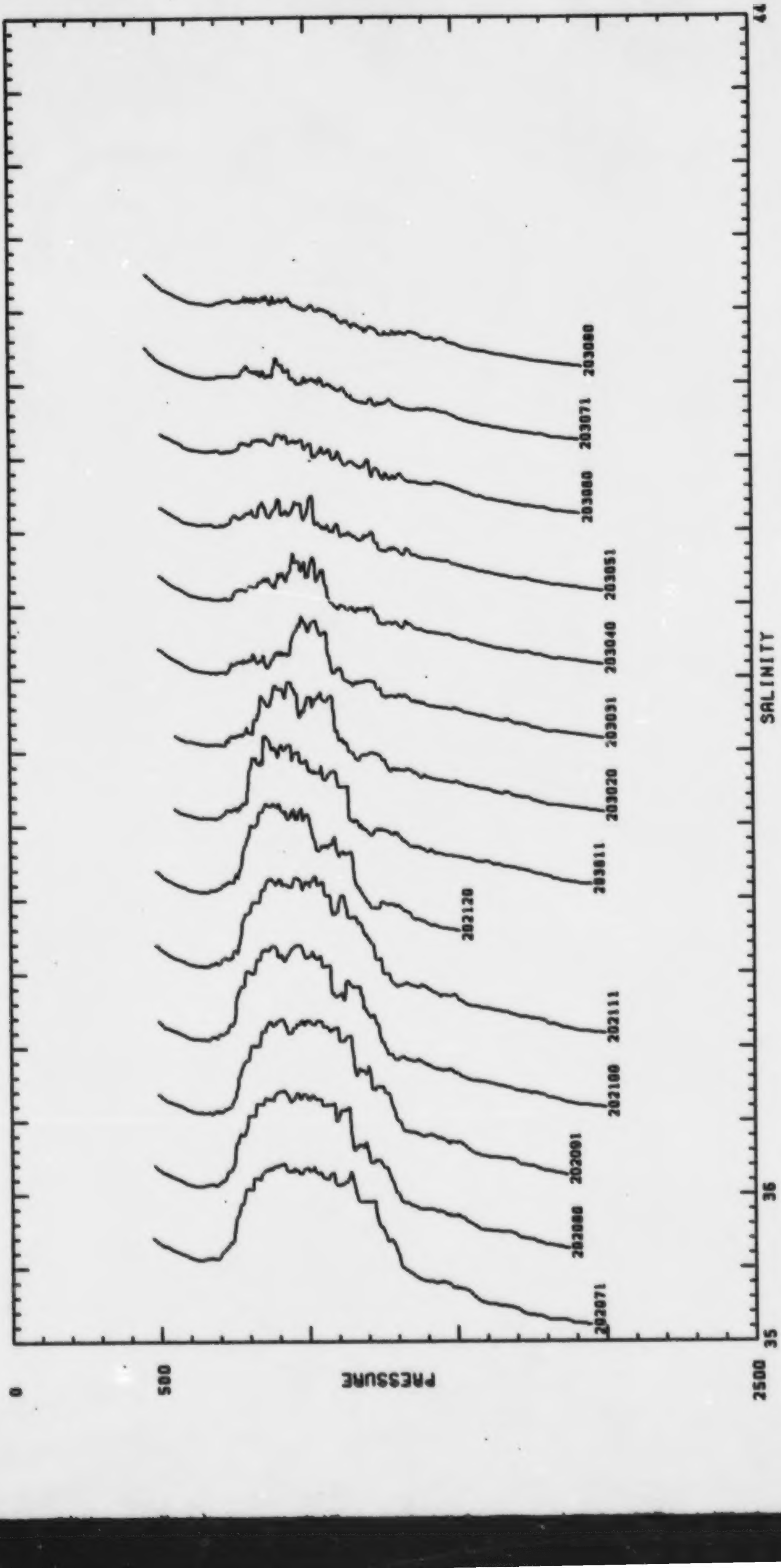

SALINITY
PRESSURE
0
500
2500
35
38
44
202060
202051
202040
202031
202020
202011
201220
201211
201200
201181
201180
201171
201160
201151

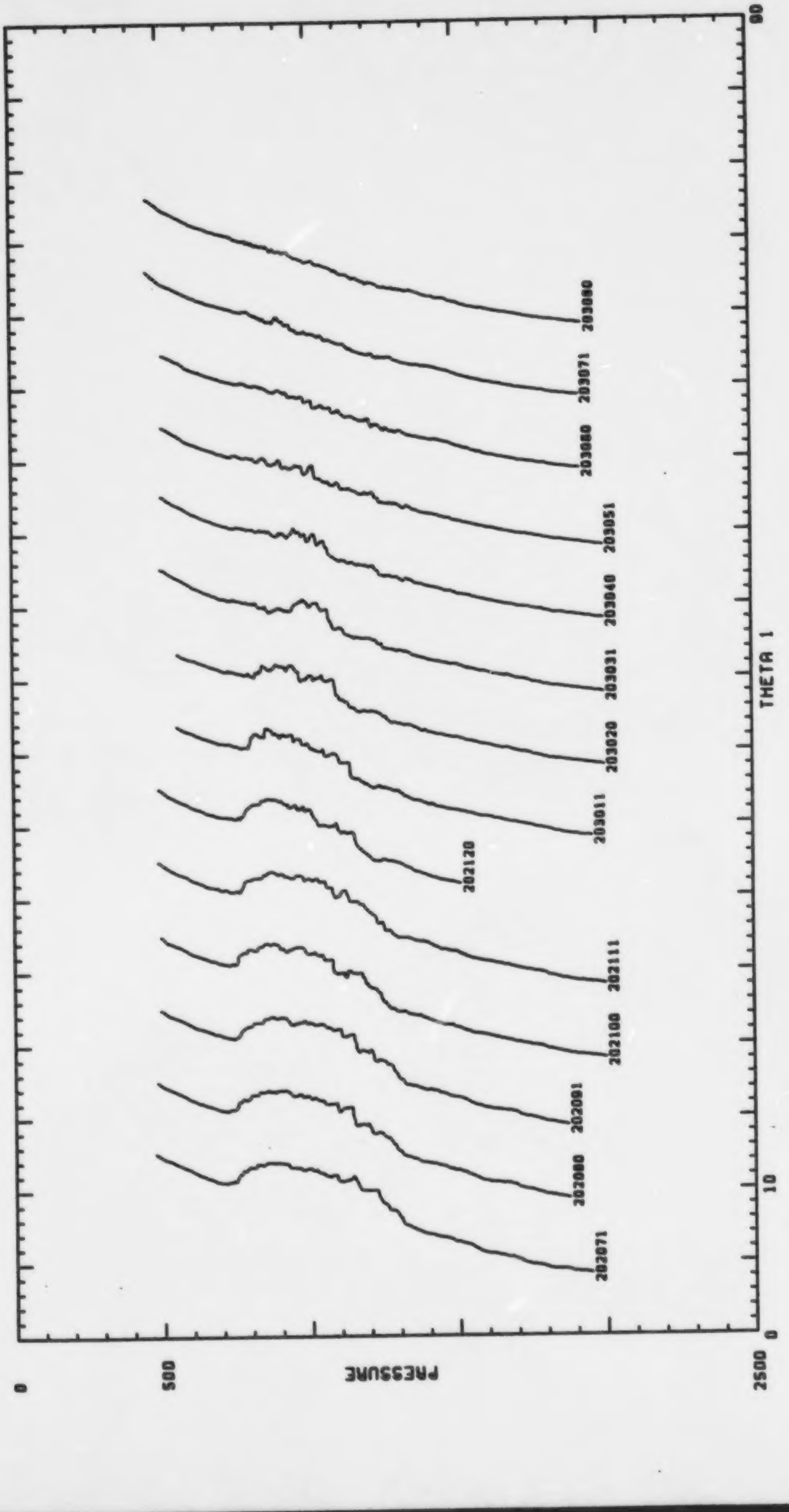

PRESSURE
0
500
2500
THETA 1
0
10
90
202080
202051
202040
202031
202020
202011
201220
201211
201200
201191
201180
201171
201160
201151


PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
202051
202040
202031
202020
202011
201220
201211
201200
201191
201190
201171
201180

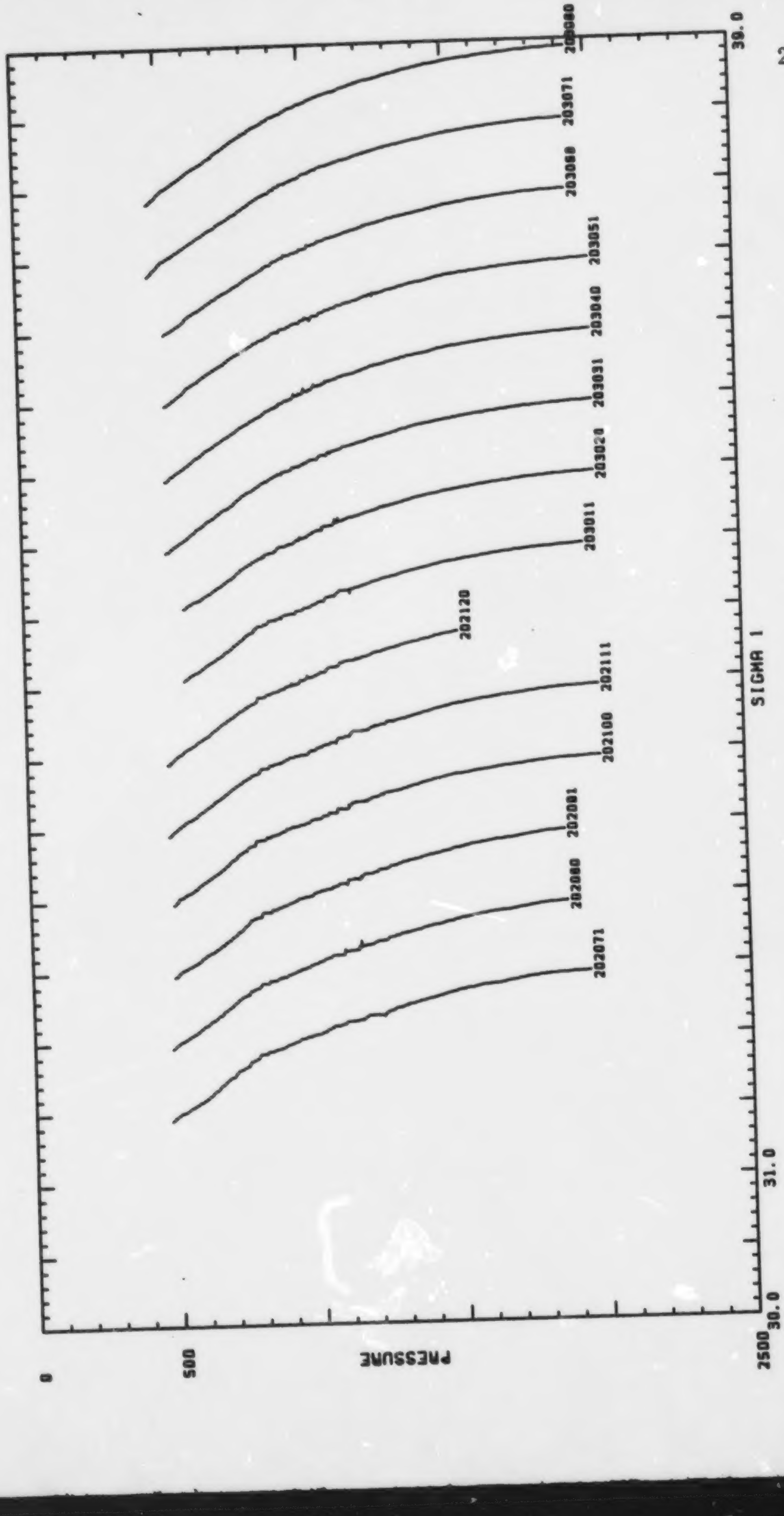
Survey III : October 1985



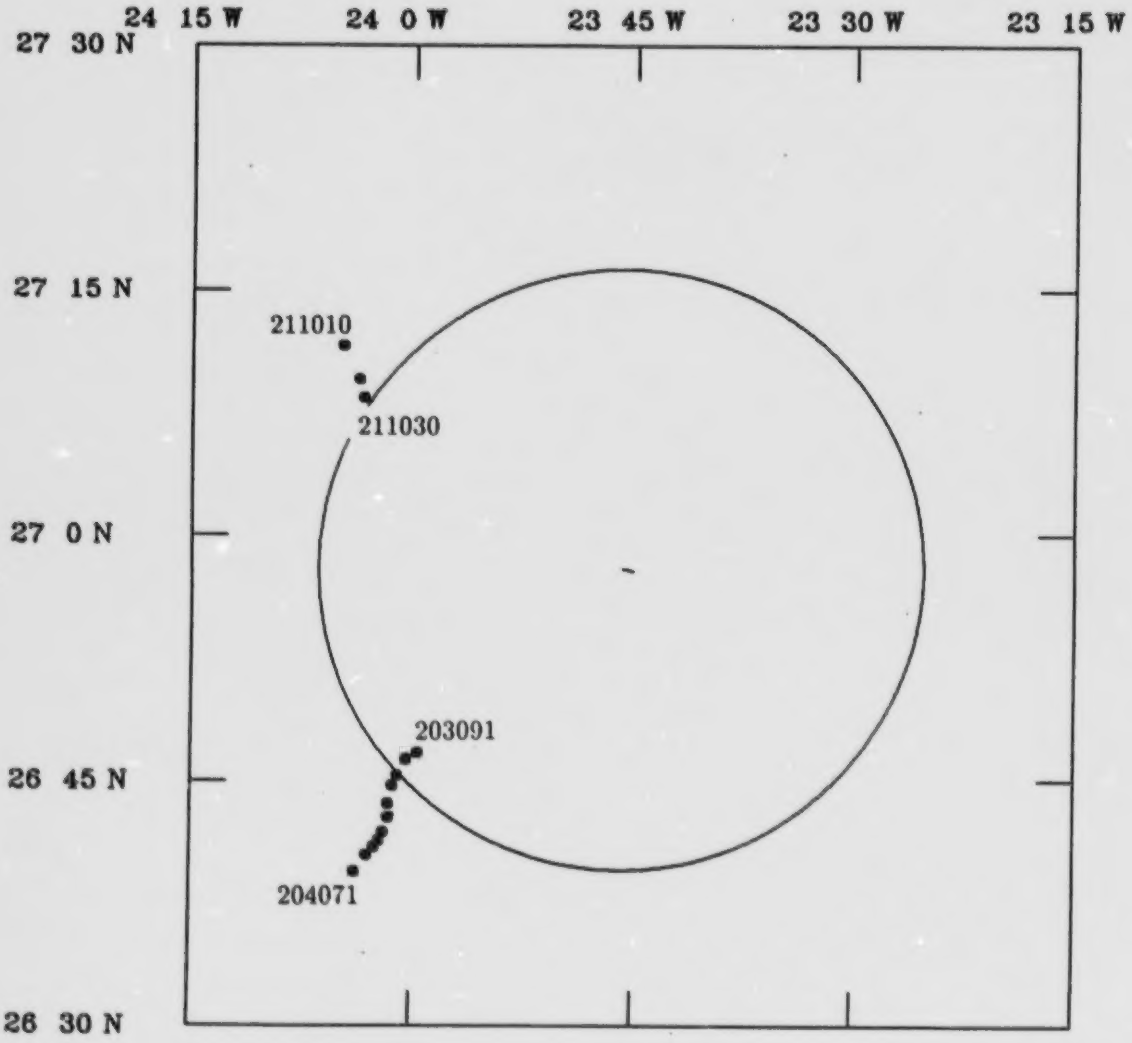

PRESSURE
0
500
2500
SALINITY
35
36
44
203080
203071
203060
203051
203040
203031
203020
203011
202120
202111
202100
202091
202080
202071

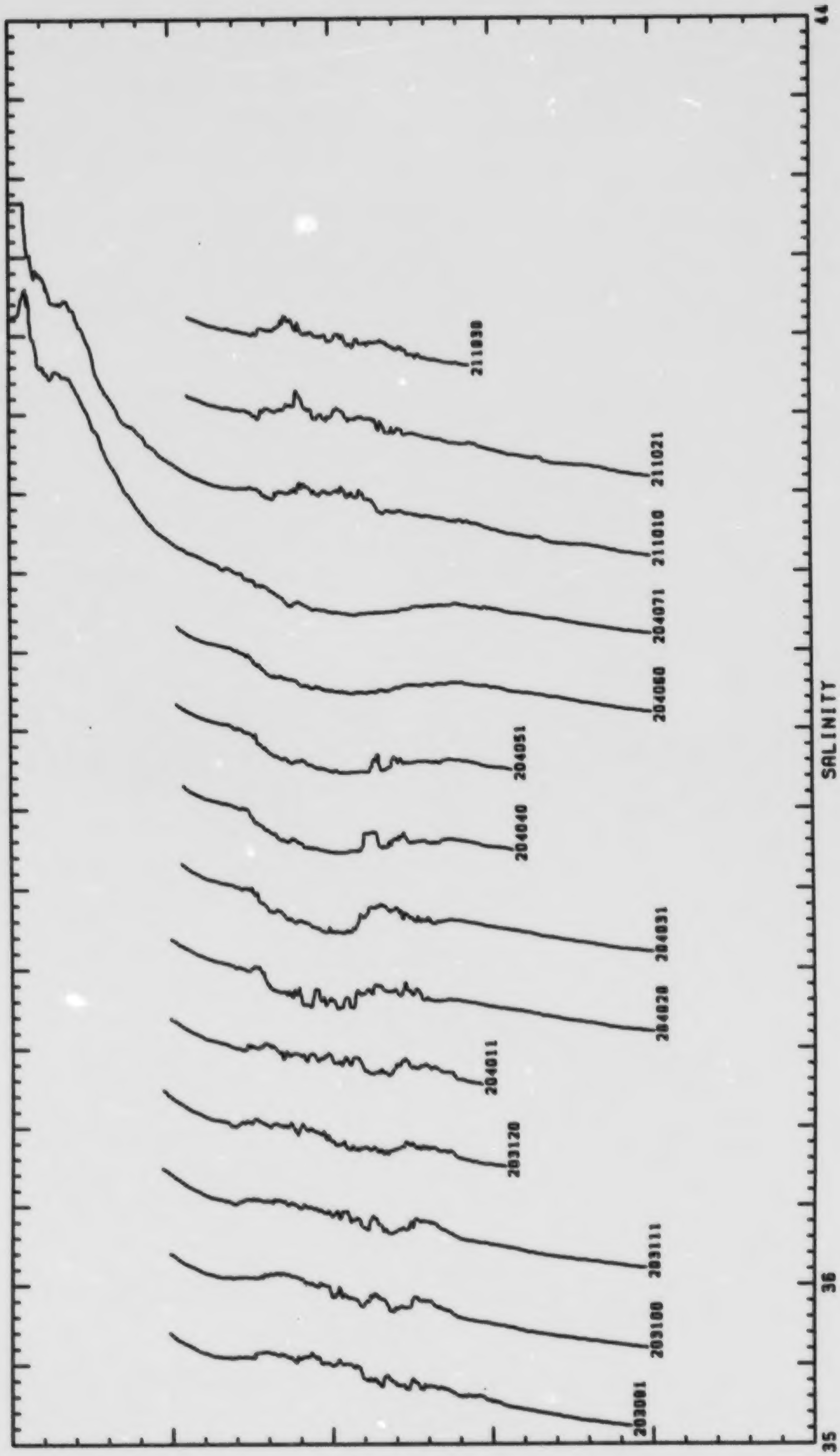


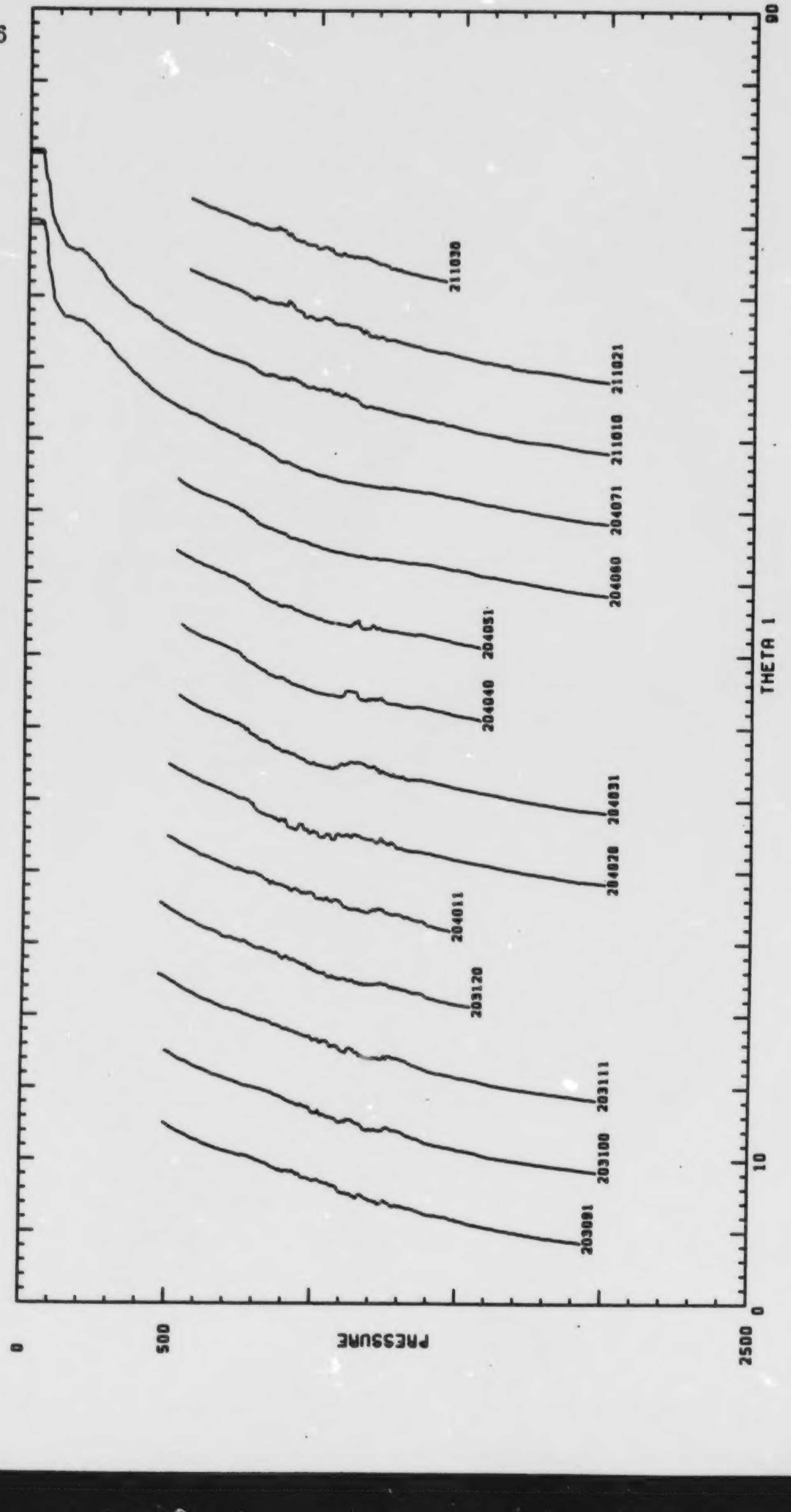
PRESSURE
0
500
2500
THETA 1
0
10
90
203080
203071
203060
203051
203040
203031
203020
203011
202120
202111
202100
202091
202080
202071

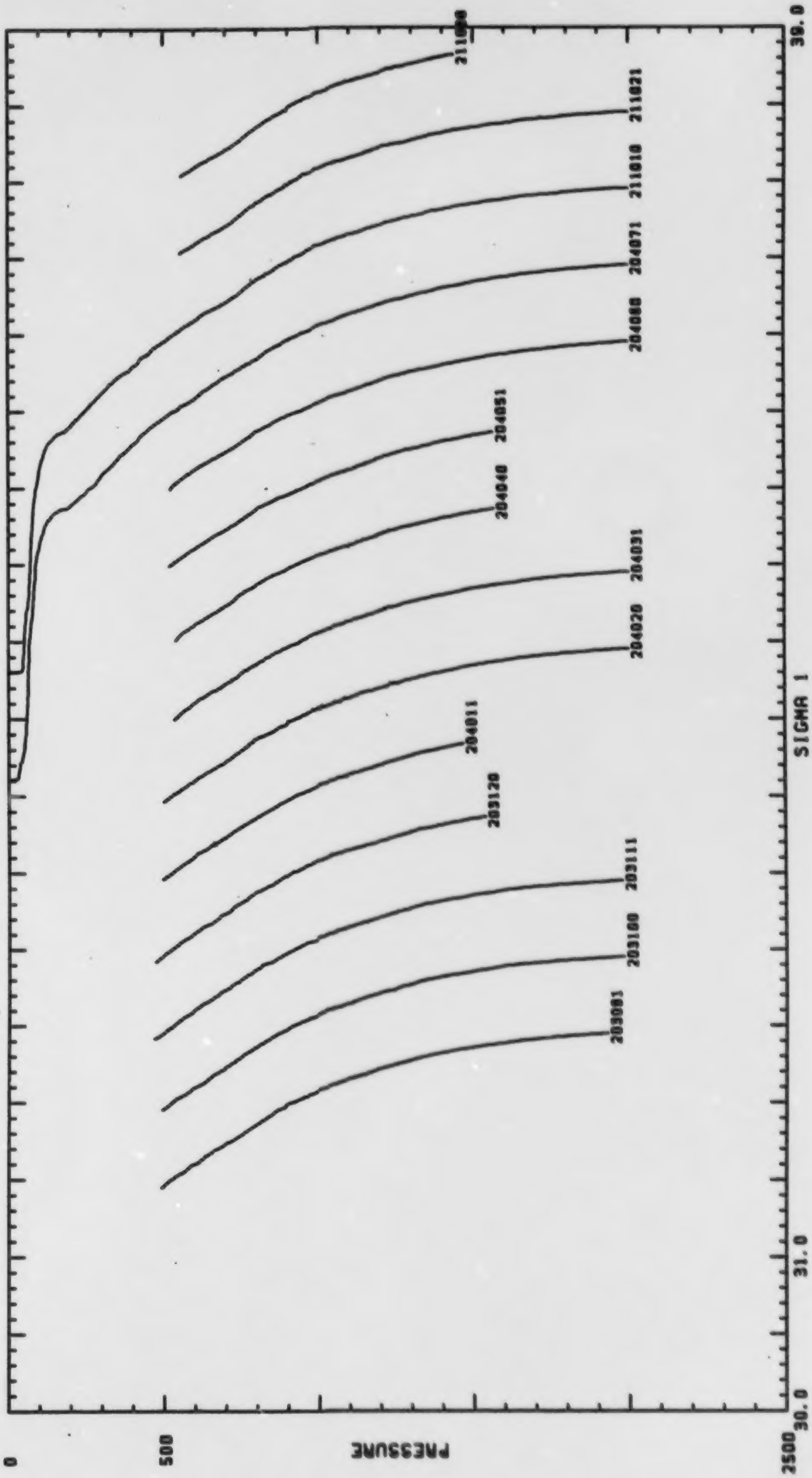

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
203080
203071
203060
203051
203040
203031
203020
203011
202120
202111
202100
202081
202080
202071

Survey III : October 1985

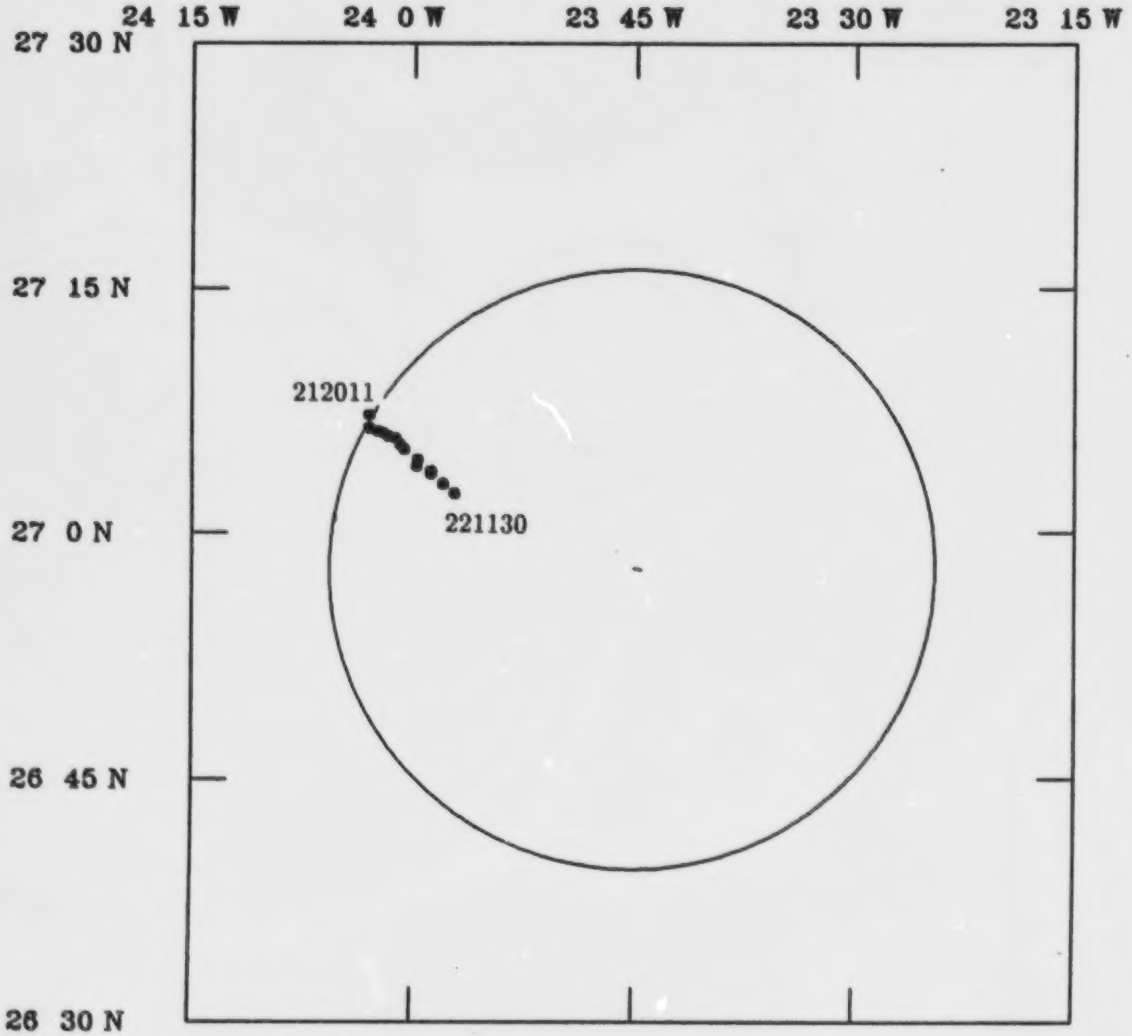


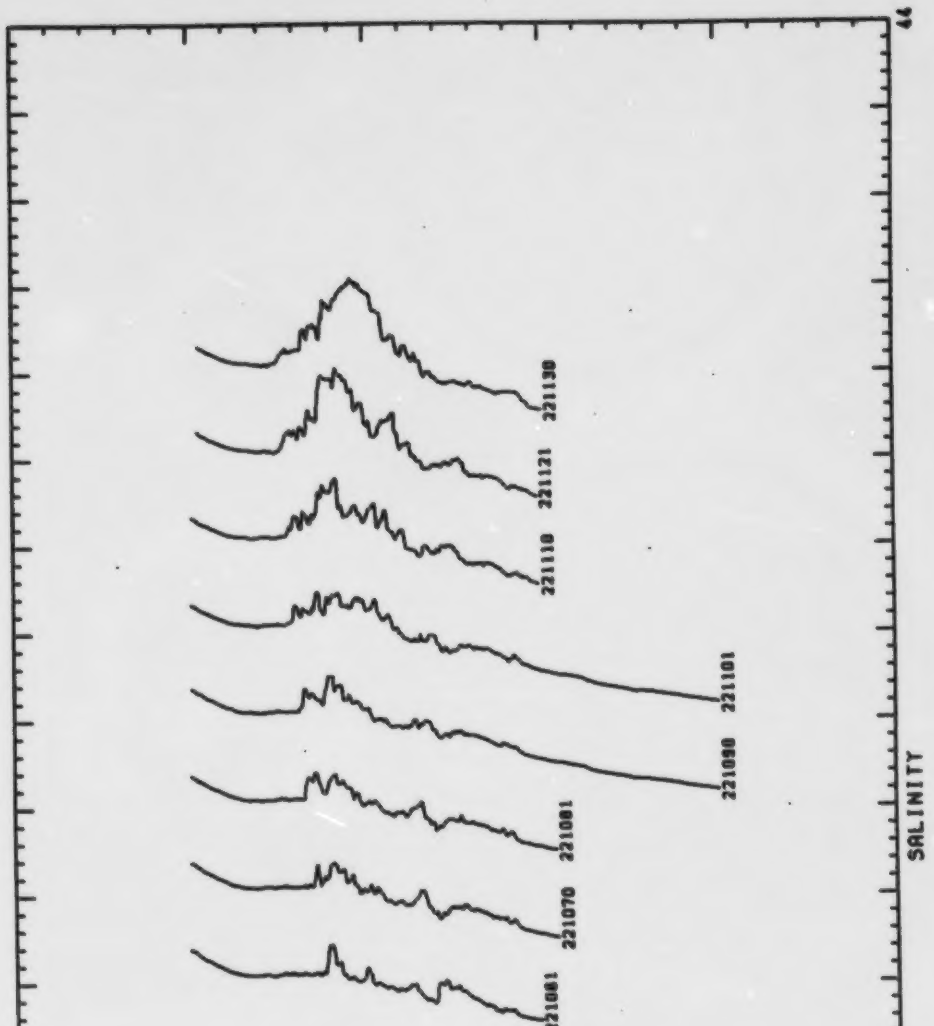

SALINITY
35
36
44
PRESSURE
0
500
2500
211030
211021
211010
204071
204060
204051
204040
204031
204020
204011
203120
203111
203100
203001


PRESSURE
0
500
2500
THETA 1
0
10
90
211030
211021
211010
204071
204060
204051
204040
204031
204020
204011
203120
203111
203100
203091

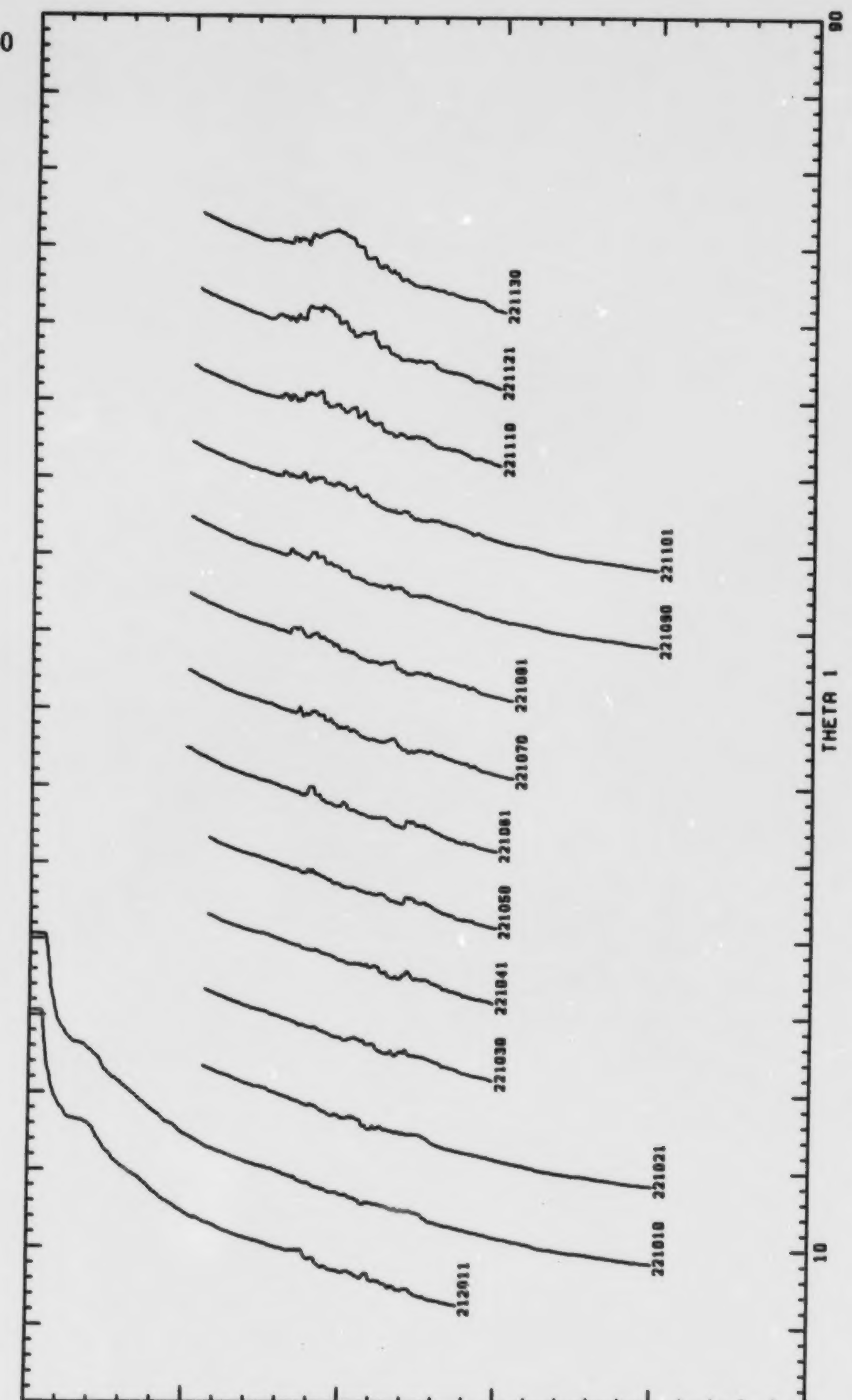

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
36.0
211021
211010
204071
204080
204051
204040
204031
204020
204011
203120
203111
203100
203081

Survey III : October 1985

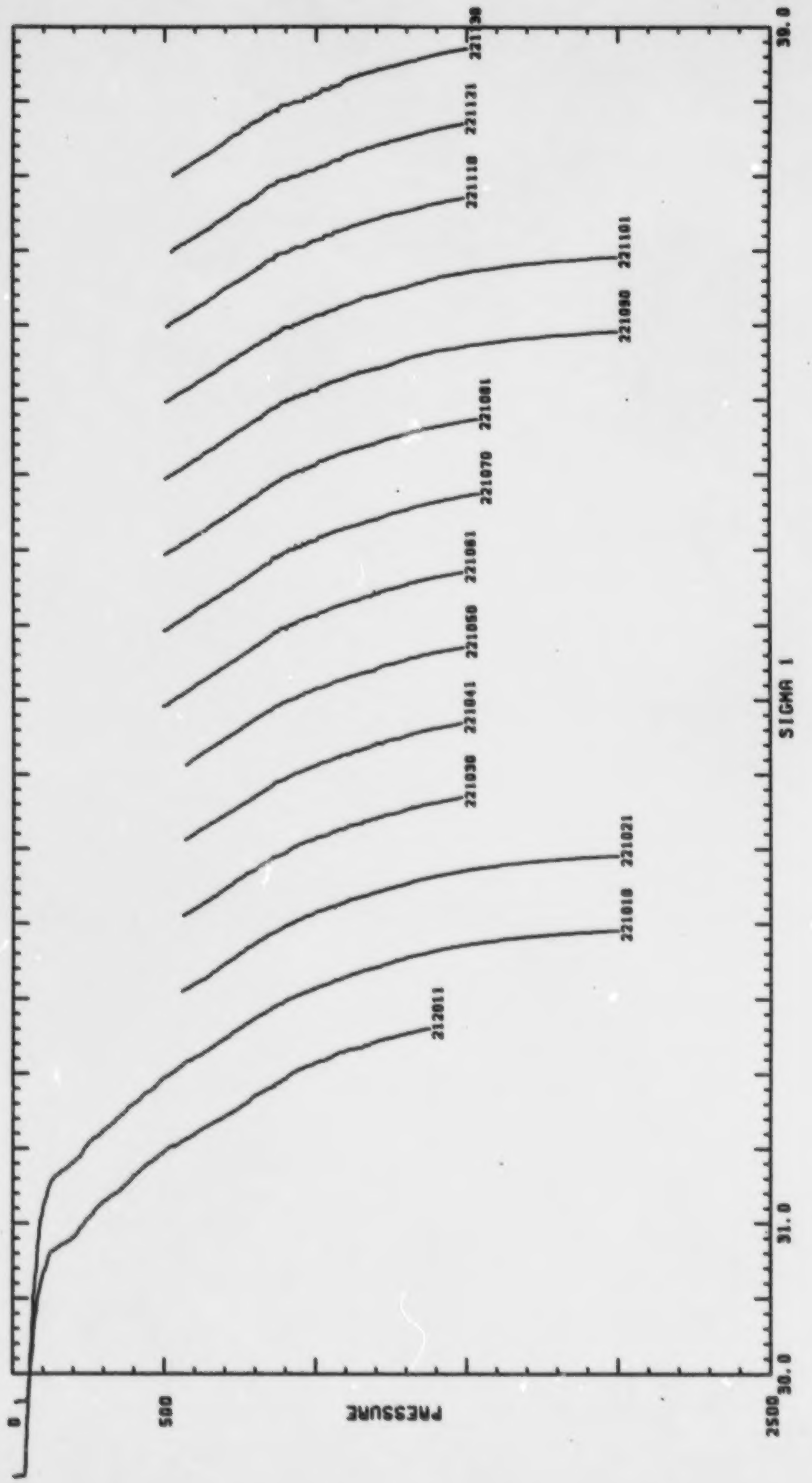




PRESSURE
0
500
2500
SALINITY
35
36
44
213011
221010
221021
221030
221041
221050
221061
221070
221081
221090
221101
221110
221121
221130

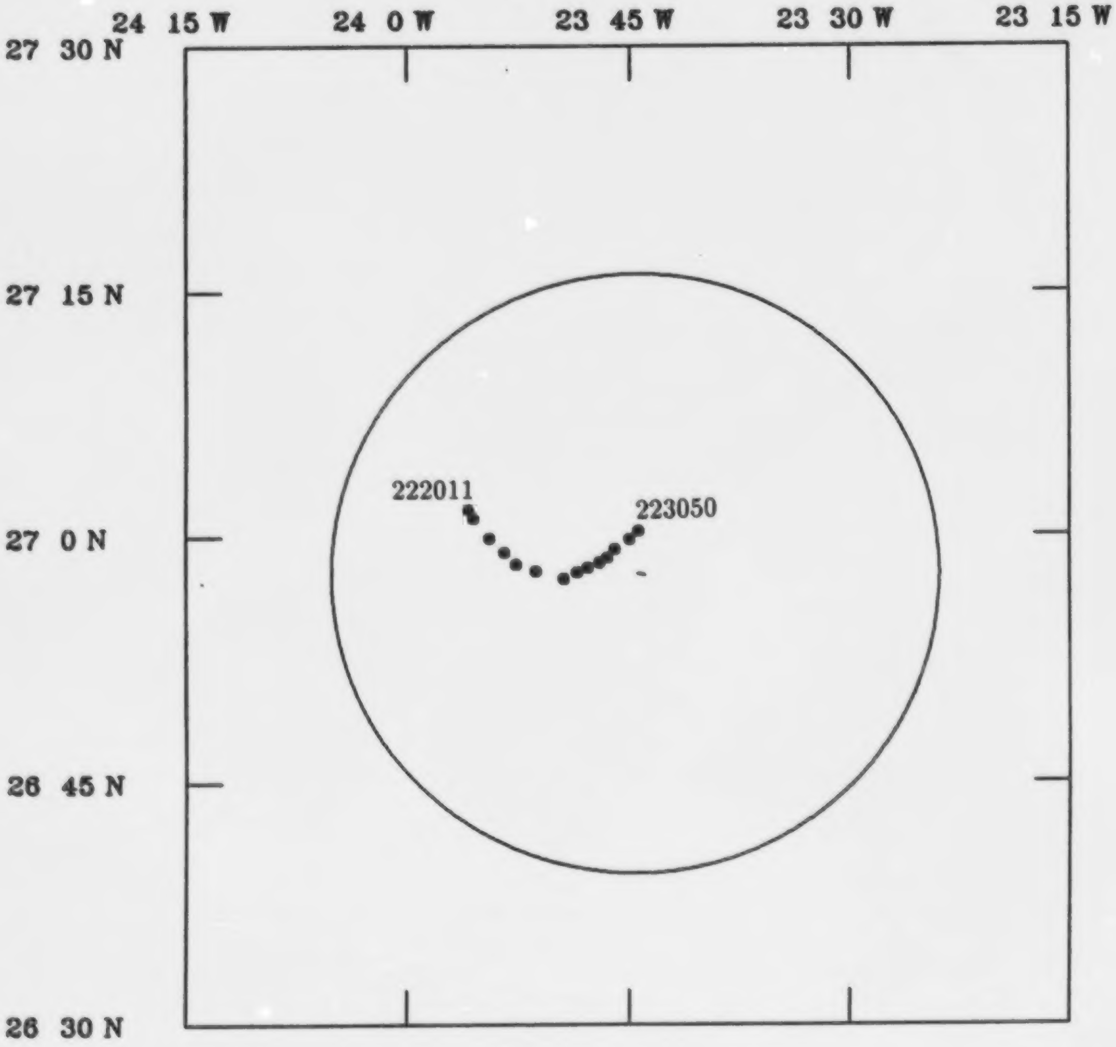


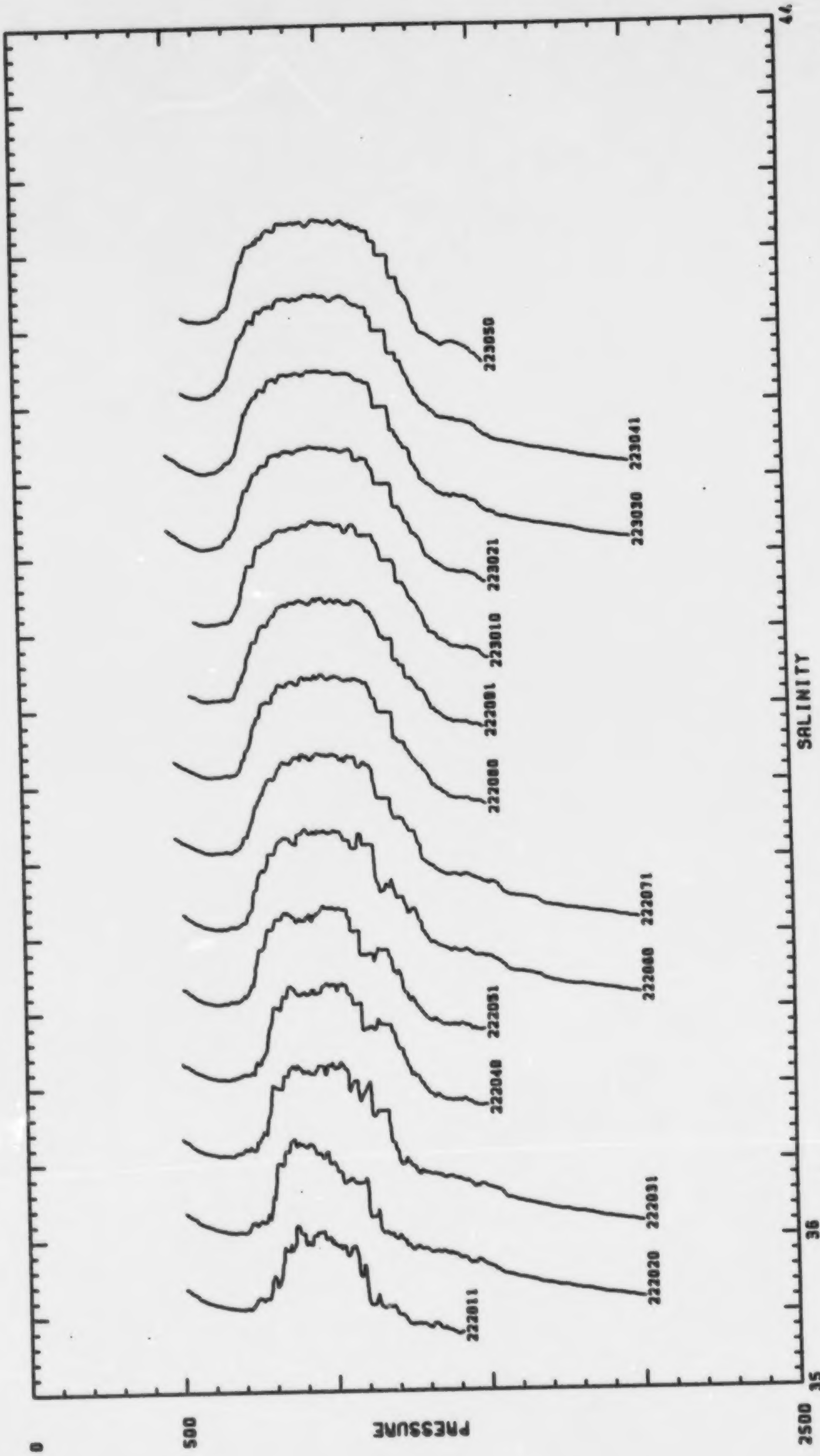
221130
221121
221110
221101
221090
221081
221070
221061
221050
221041
221030
221021
221010
212011
THETA 1
0
10
90
PRESSURE
0
500
2500

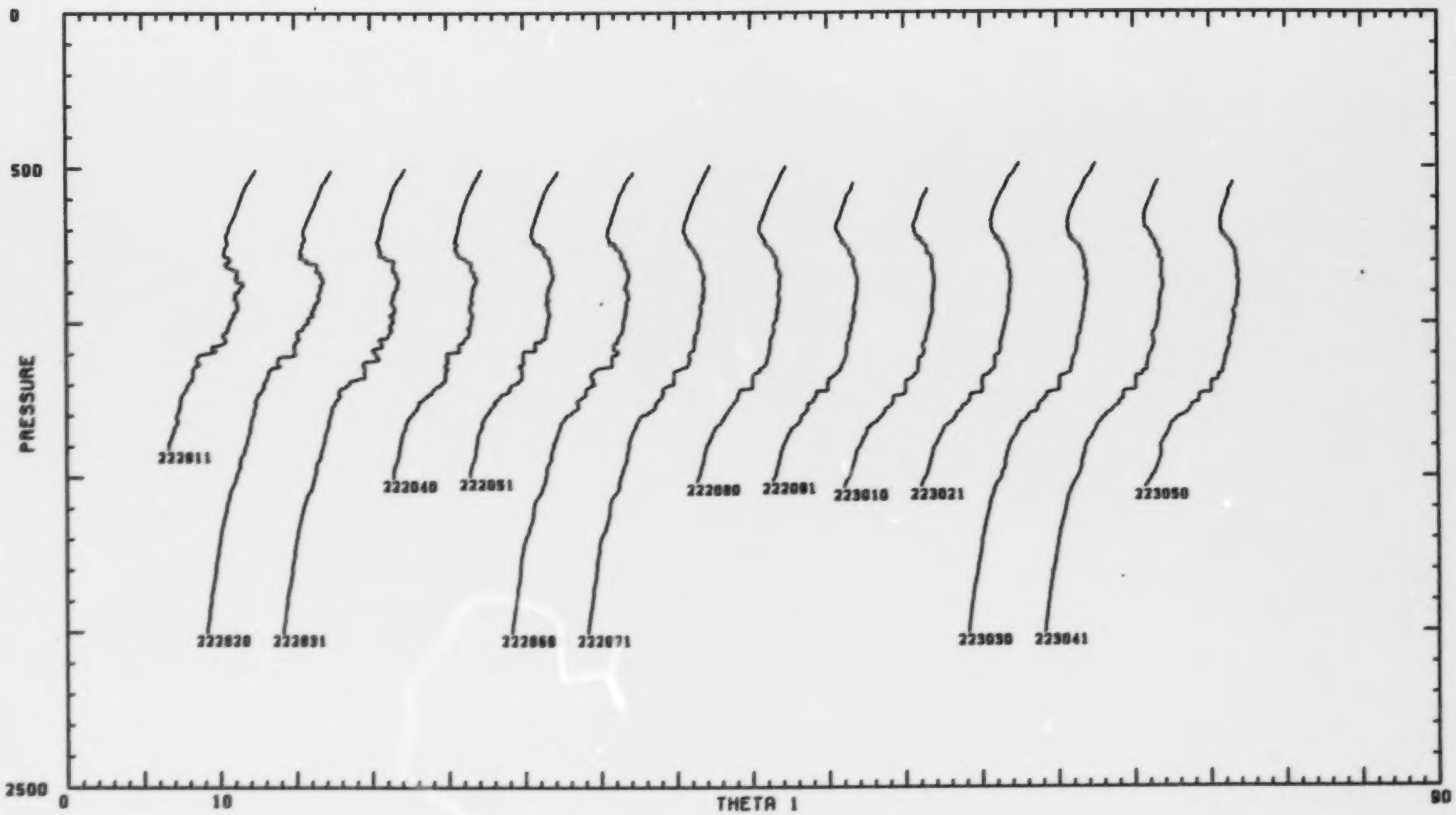


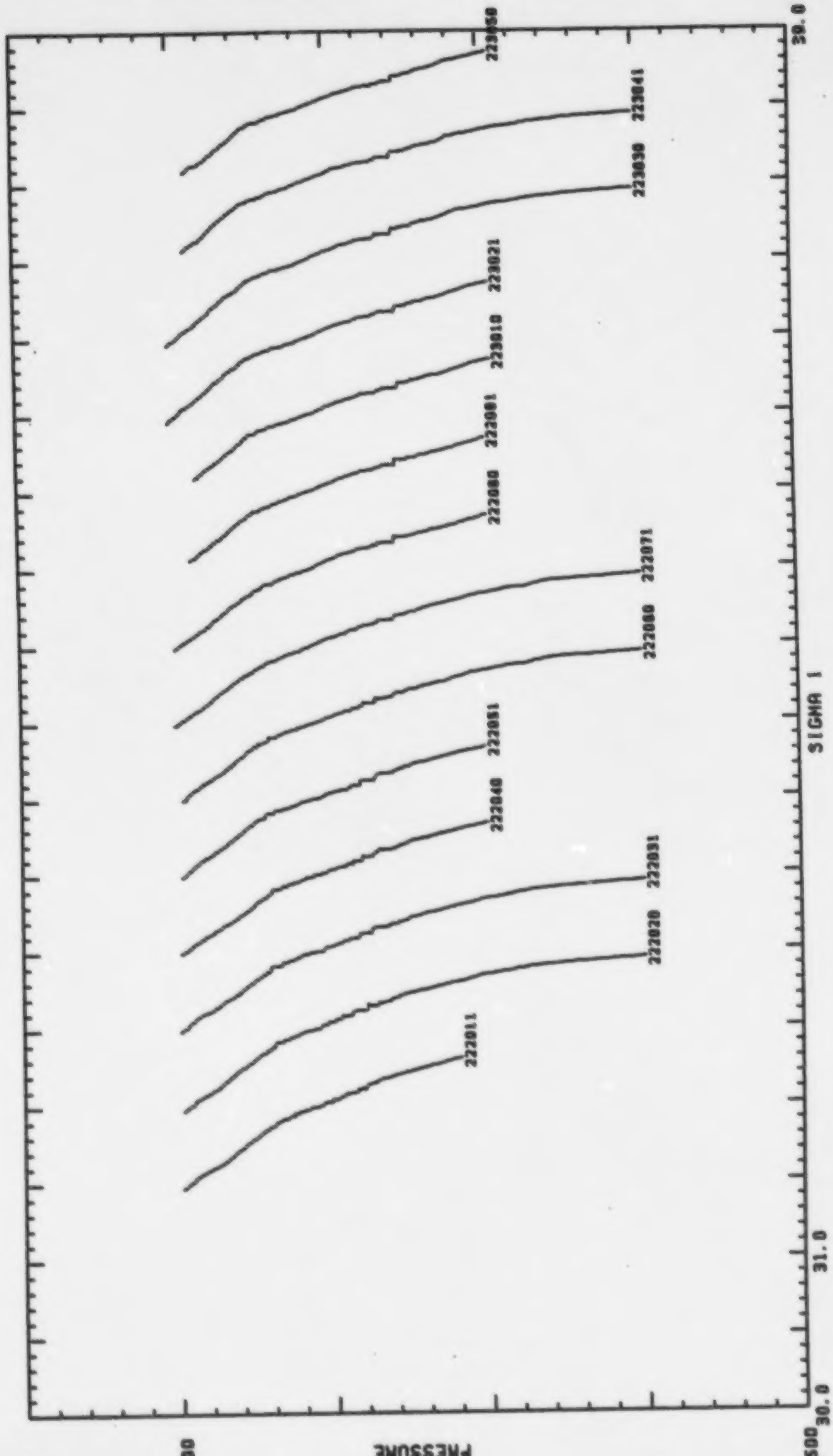
PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
221130
221121
221110
221101
221090
221081
221070
221061
221050
221041
221030
221021
221010
212011

Survey III : October 1985

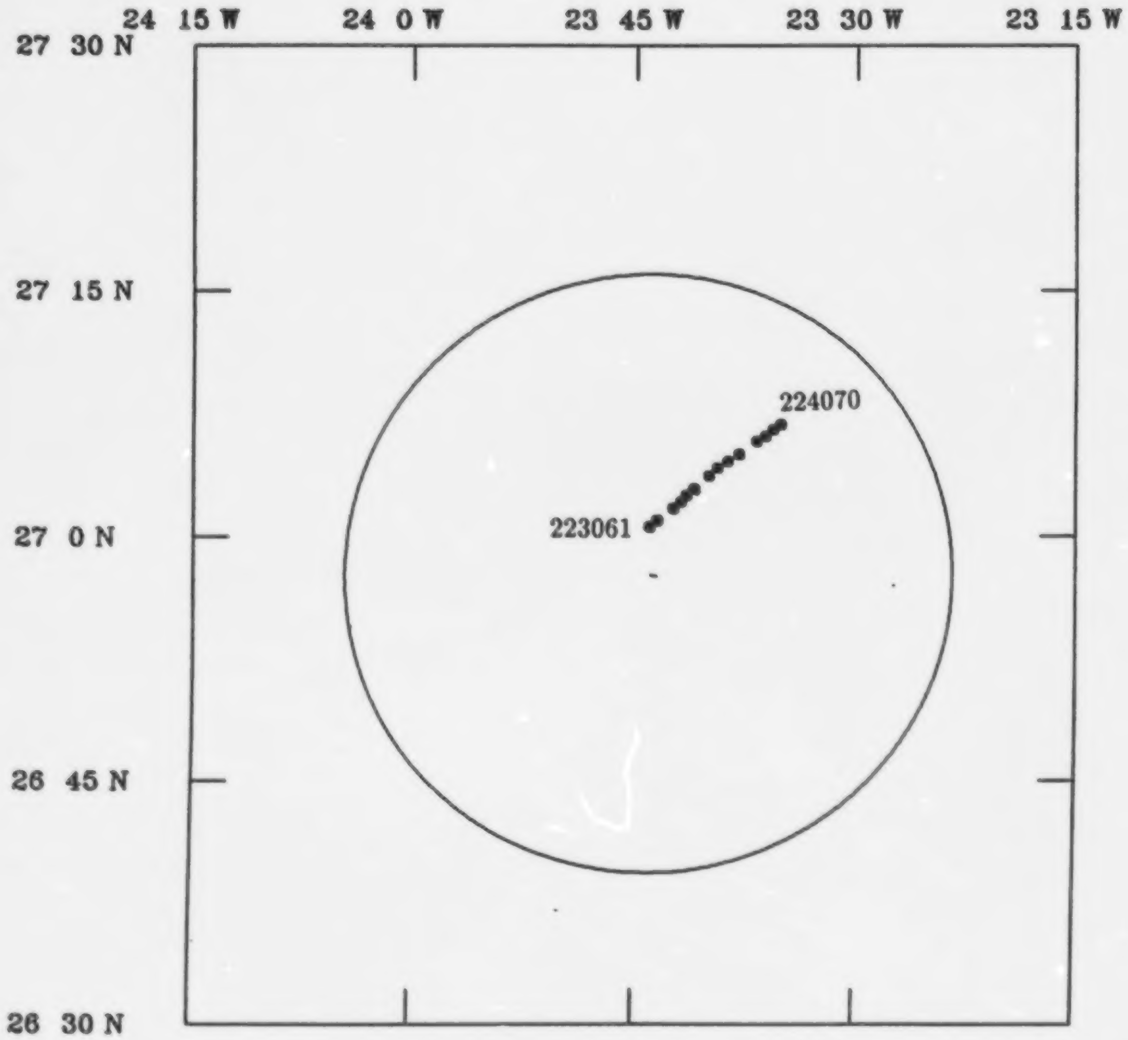


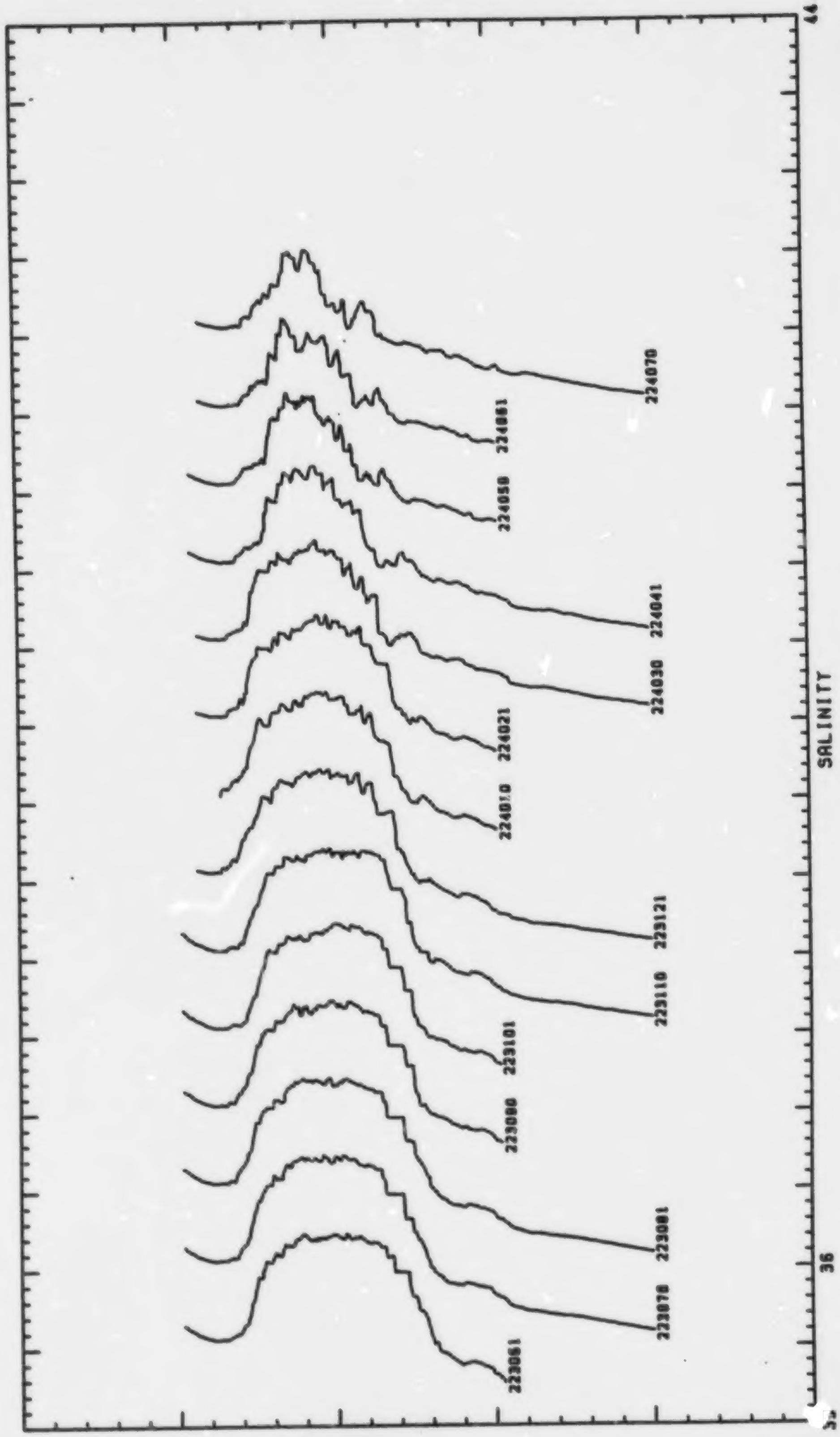

PRESSURE
0
500
2500
SALINITY
35
36
44
223050
223041
223030
223021
223010
223001
222080
222071
222060
222051
222040
222031
222020
222011


0
500
2500
PRESSURE
0
10
80
THETA 1
222011
222020
222031
222040
222051
222060
222071
222080
222081
223010
223021
223030
223041
223050

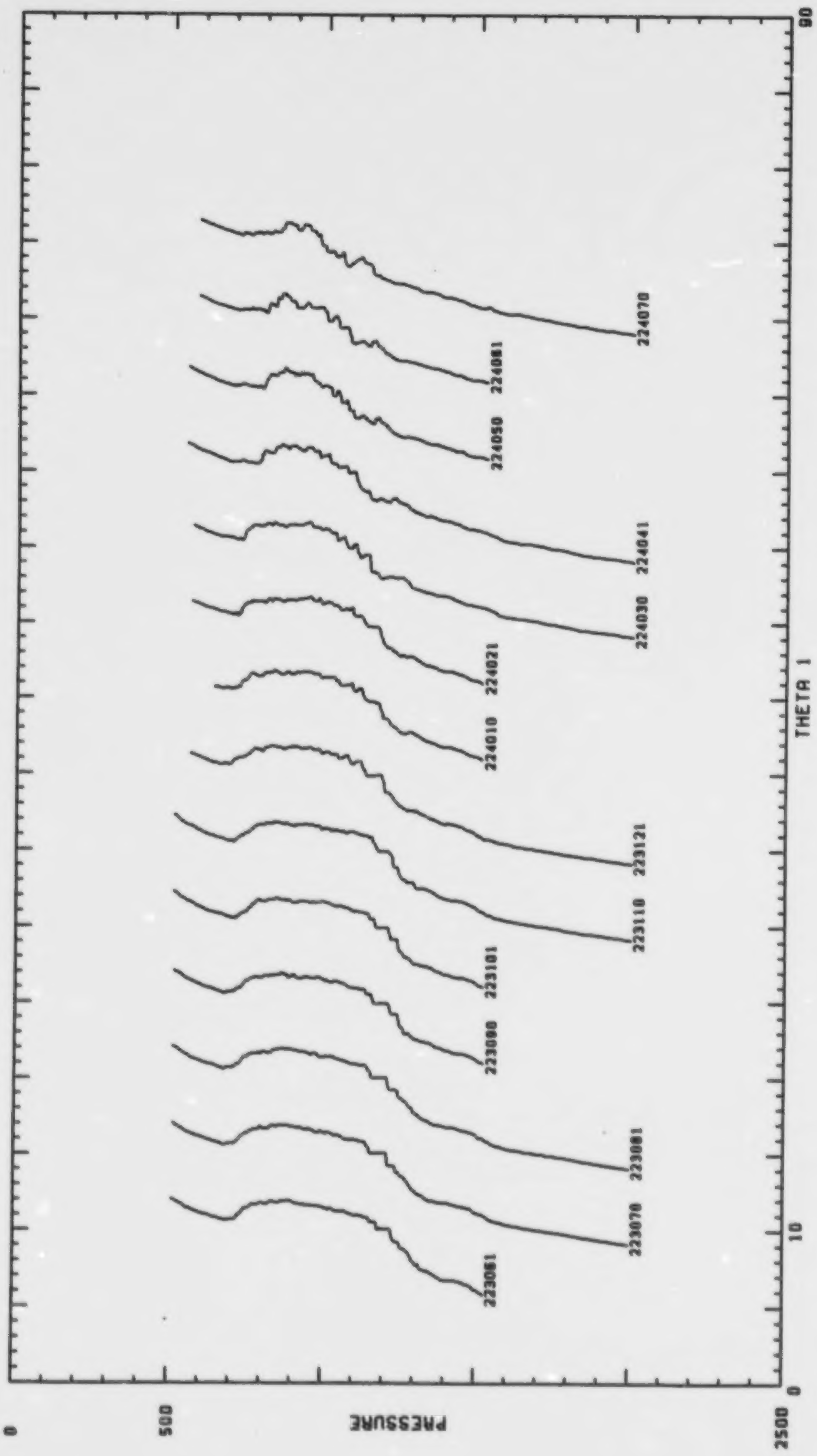

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
30.0
223050
223041
223030
223021
223010
222081
222080
222071
222060
222051
222040
222031
222020
222011

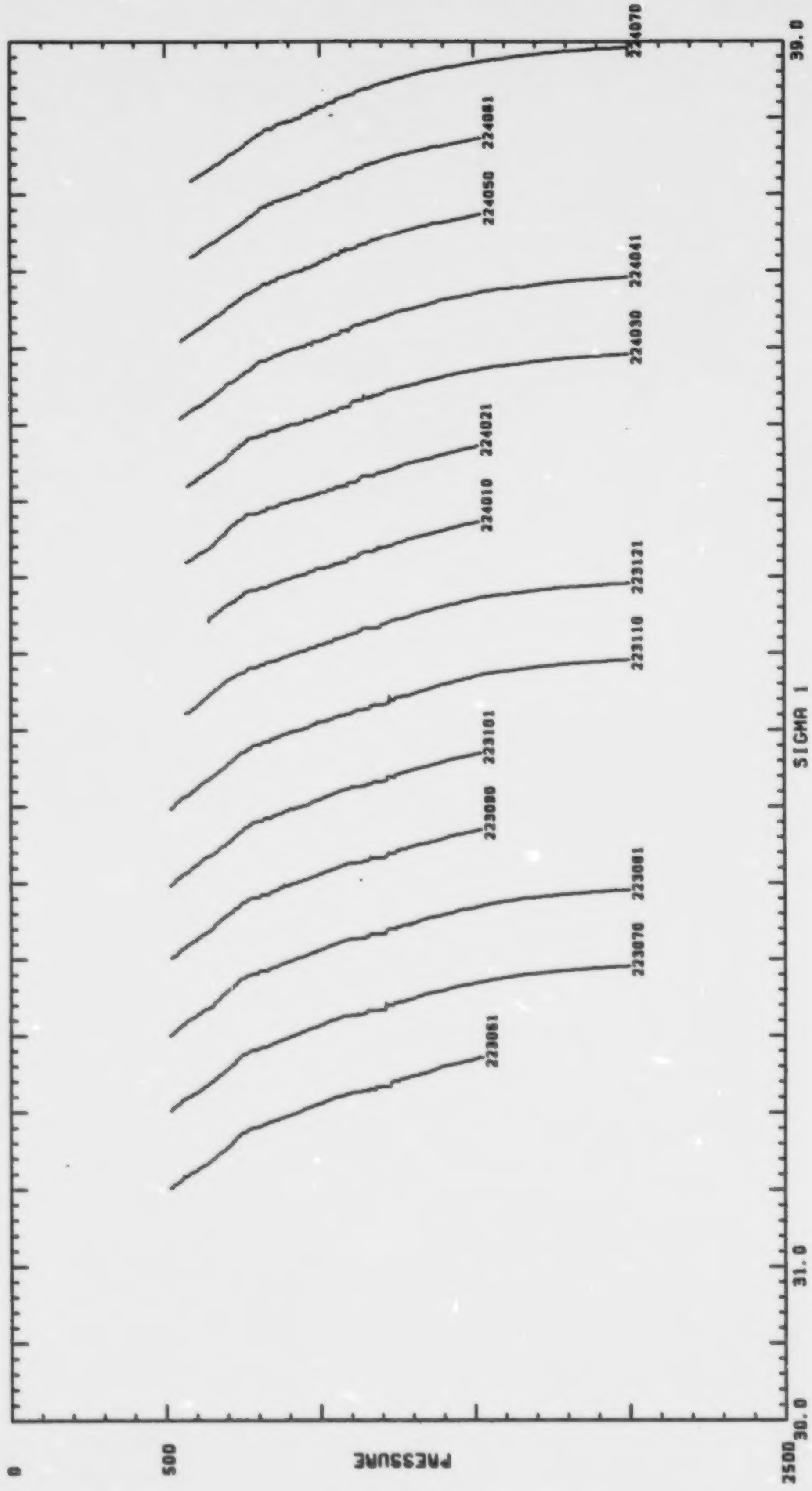
Survey III : October 1985



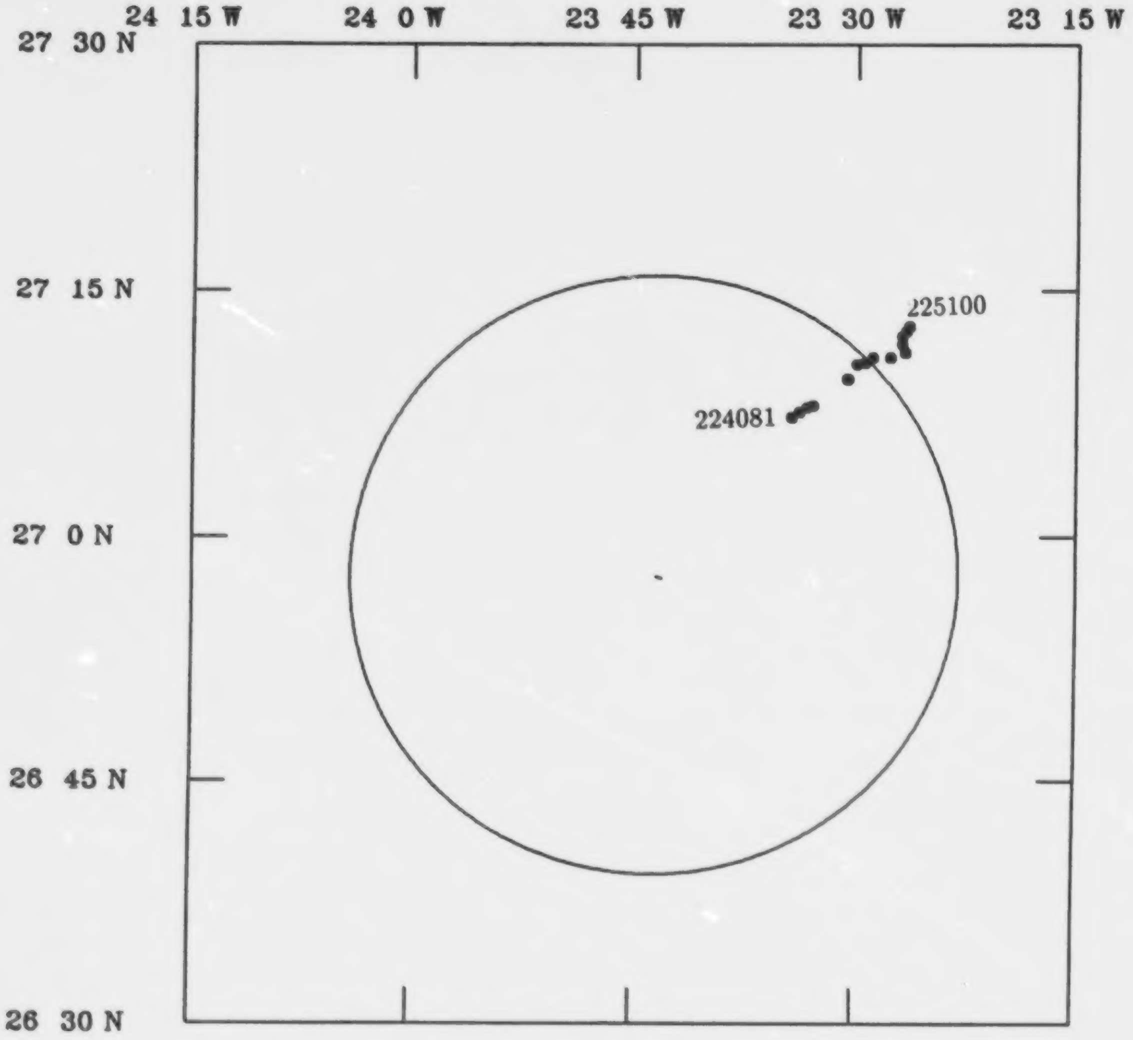


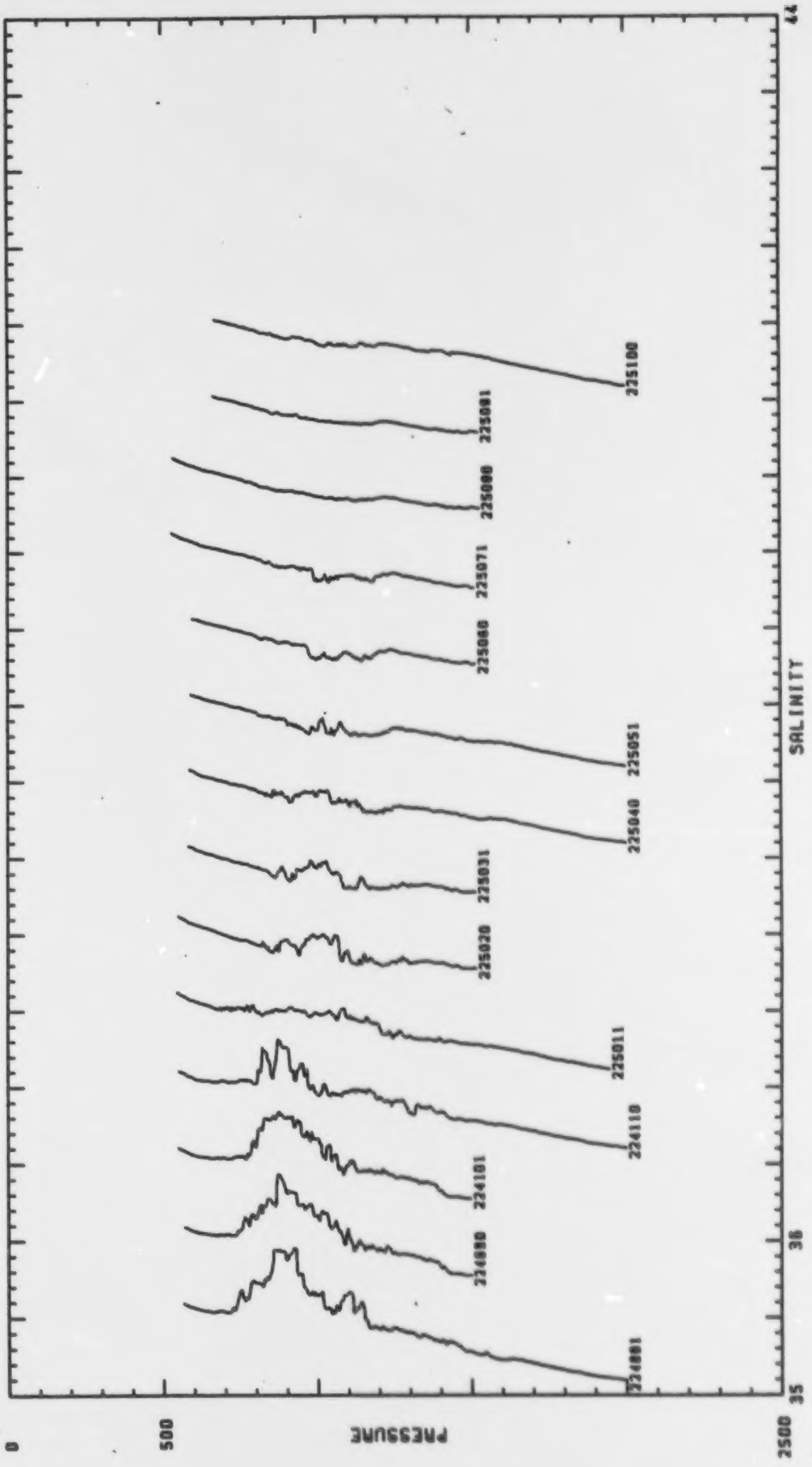
PRESSURE
0
500
2500
SALINITY
36
44
224070
224061
224050
224041
224030
224021
224010
223121
223110
223101
223090
223081
223070
223061

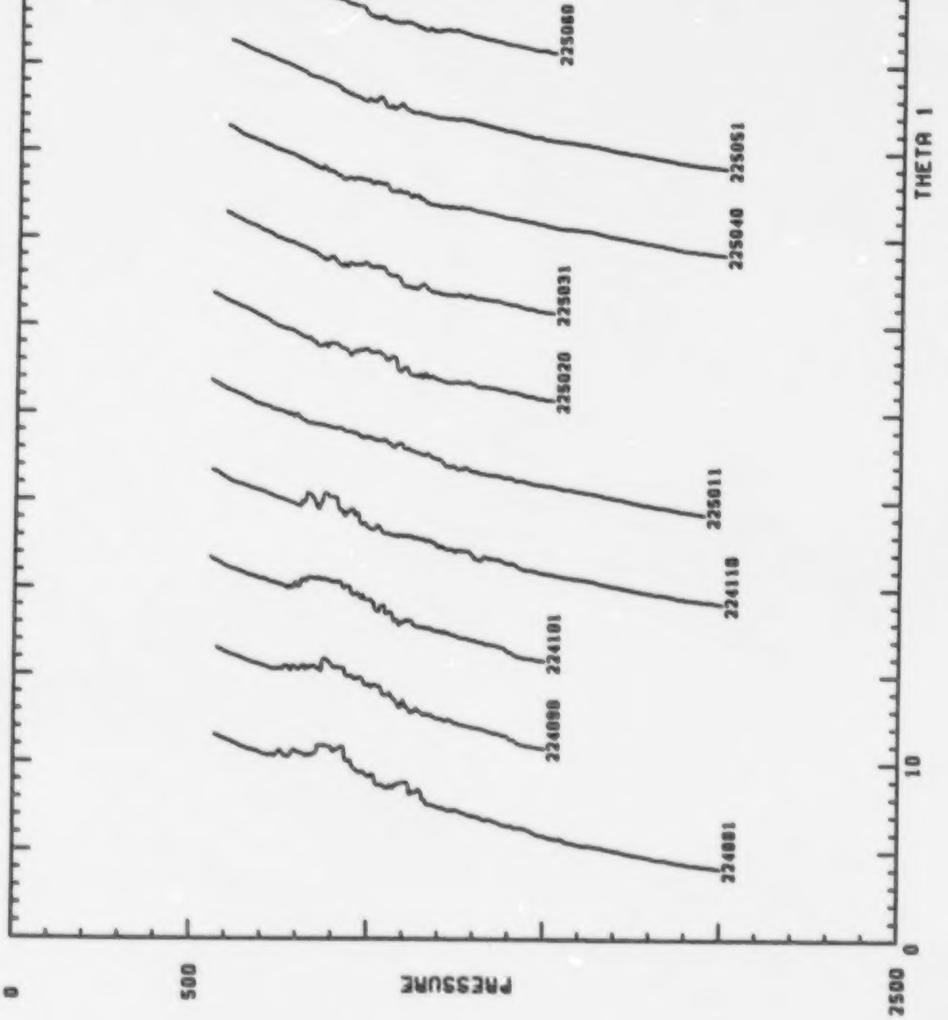

224070
224061
224050
224041
224030
224021
224010
223121
223110
223101
223090
223081
223070
223061
THETA 1
0
10
90
PRESSURE
0
500
2500

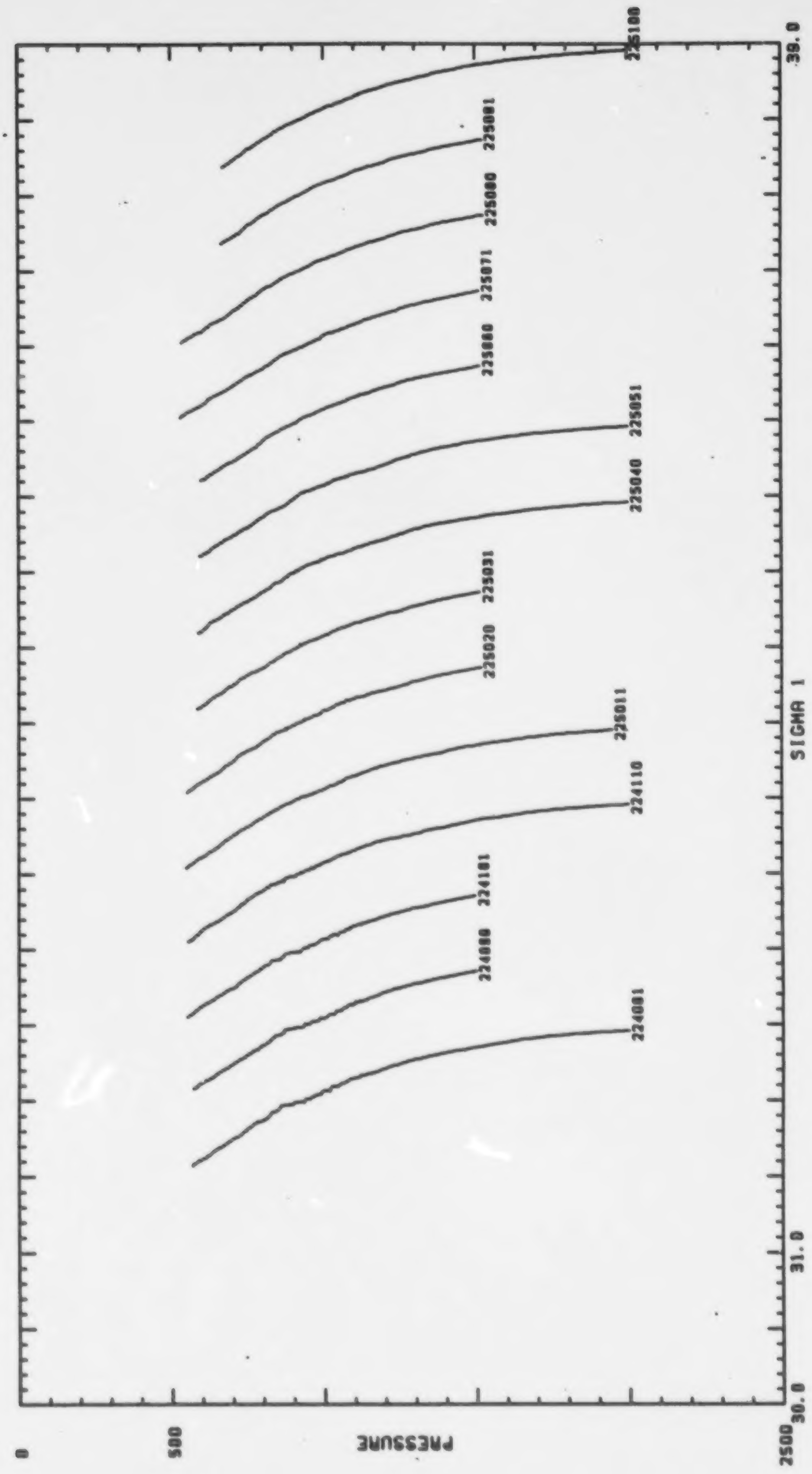

224070
224081
224050
224041
224030
224021
224010
223121
223110
223101
223090
223081
223070
223061
SIGMA 1
PRESSURE
0
500
2500
30.0
31.0
39.0

Survey III : October 1985

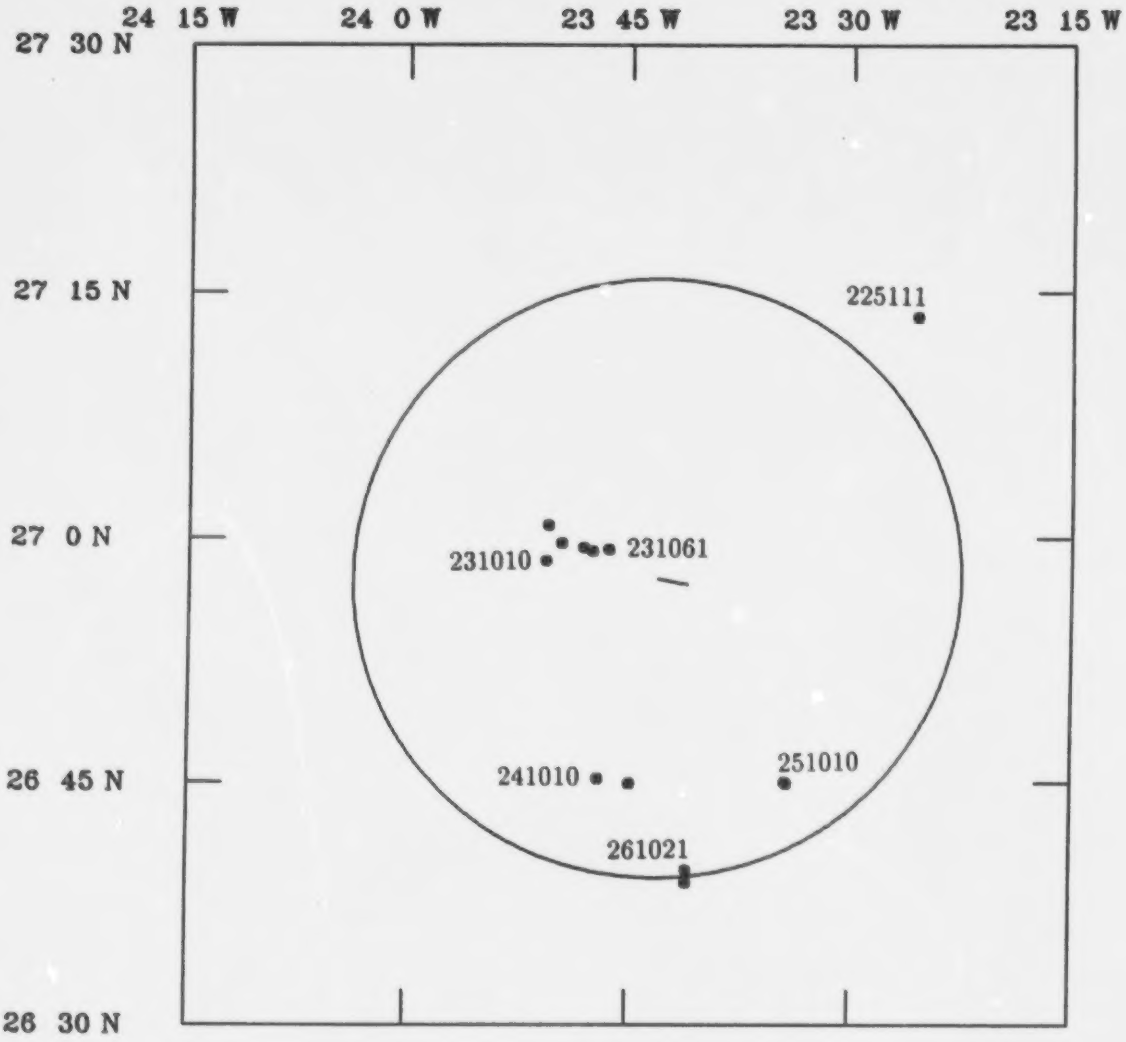


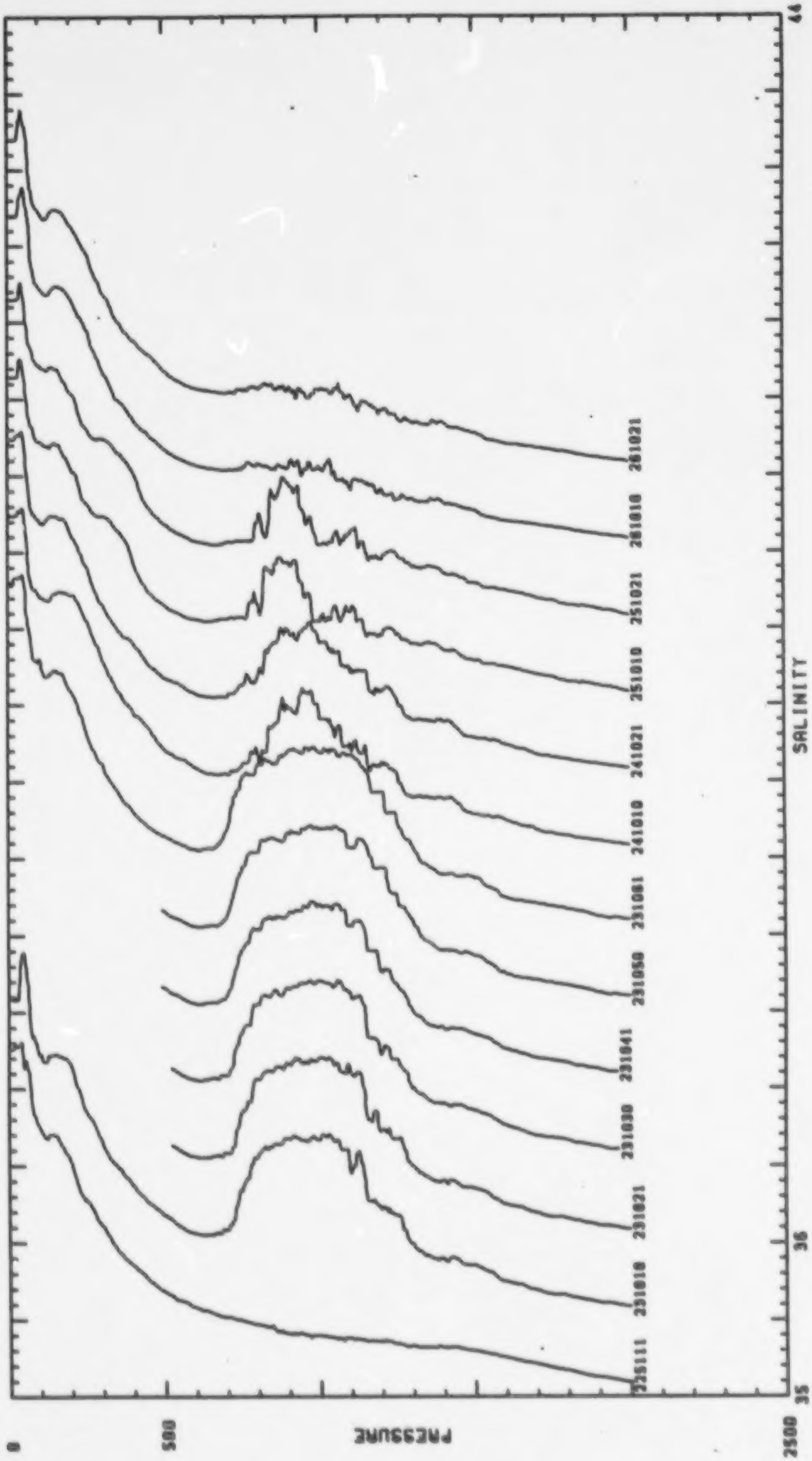

PRESSURE
0
500
2500
SALINITY
35
36
44

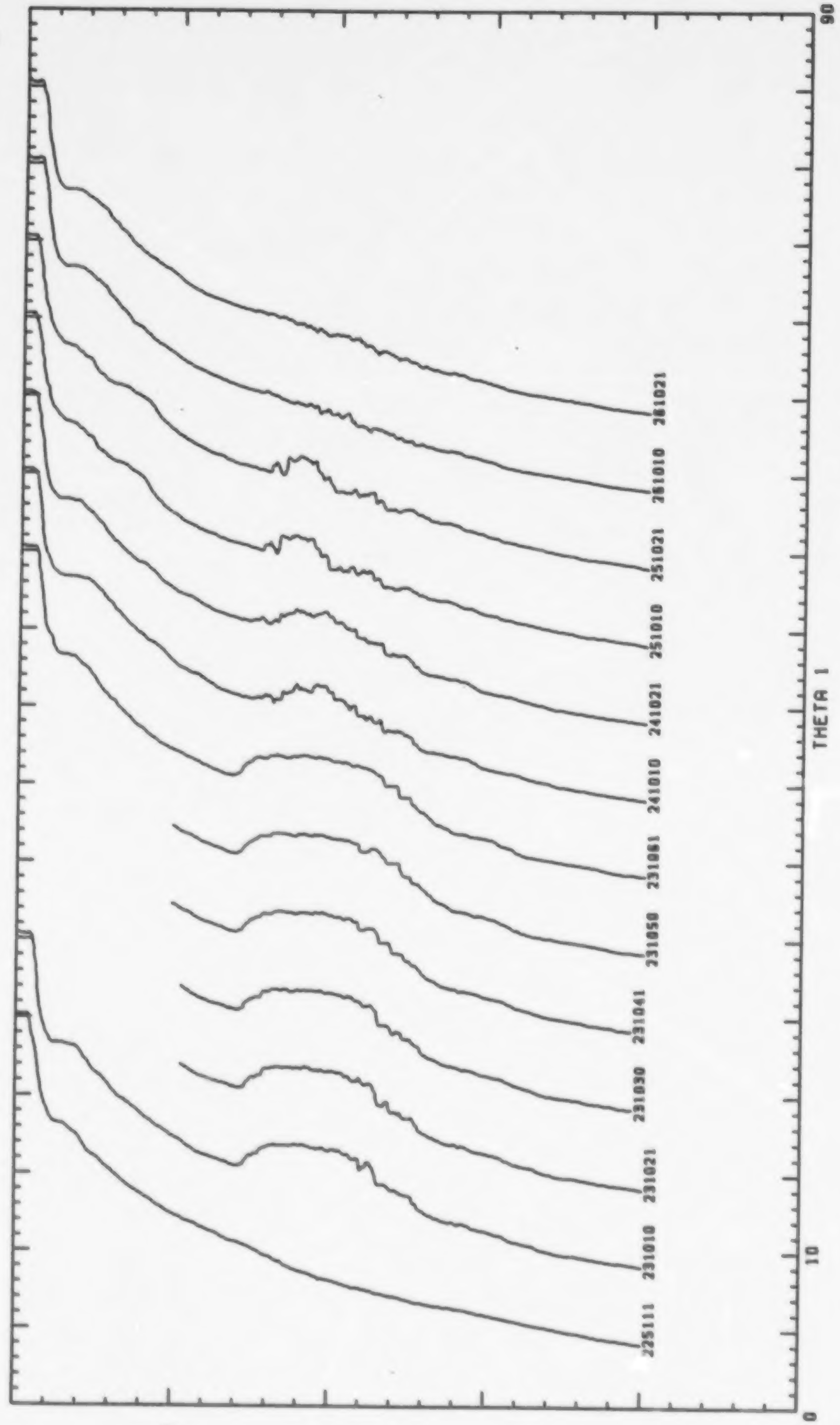

PRESSURE
0
500
2500
THETA 1
0
10
90
224081
224090
224101
224110
225011
225020
225031
225040
225051
225060
225071
225080
225091
225100

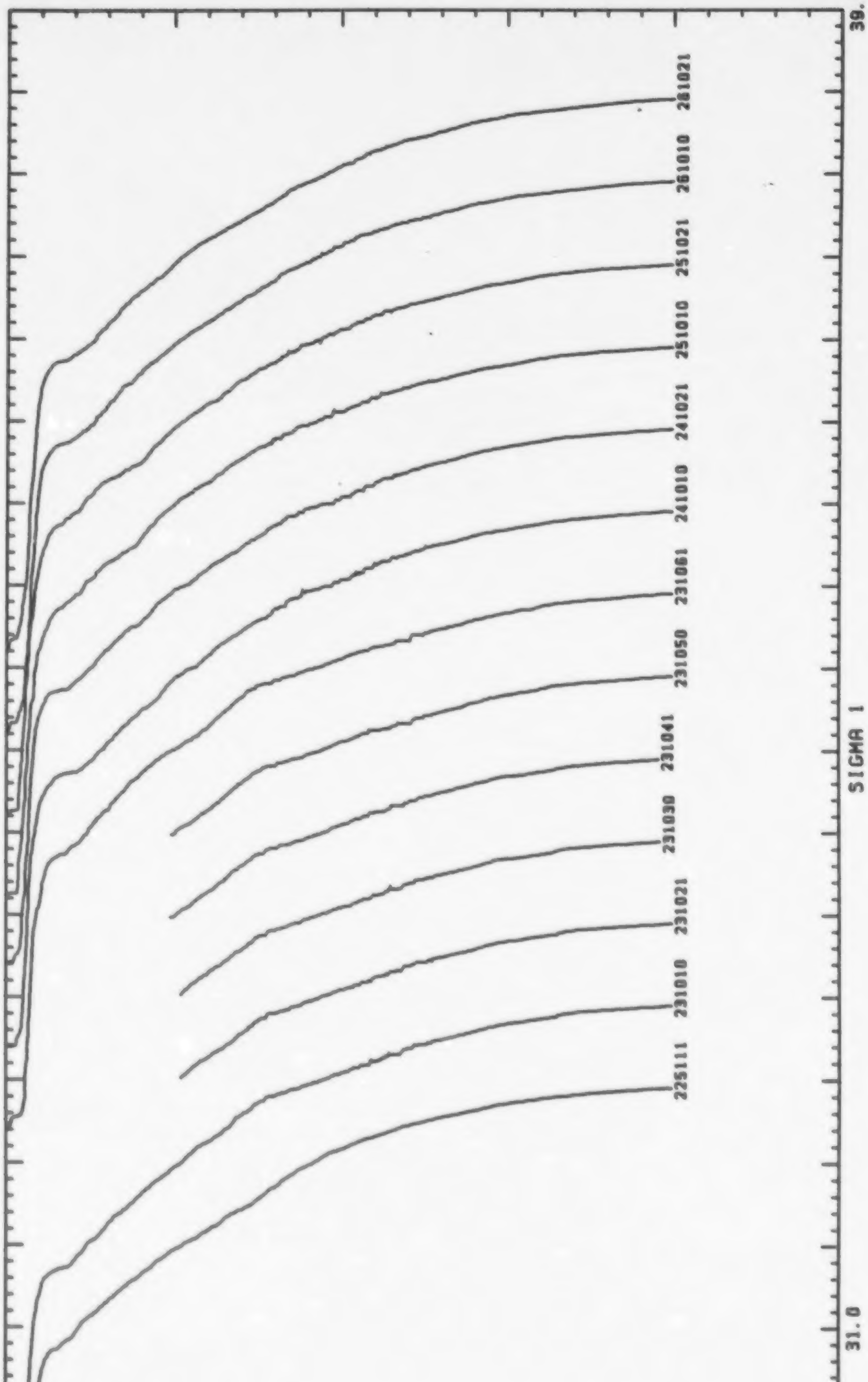

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
225100
225081
225080
225071
225060
225051
225040
225031
225020
225011
224110
224101
224080
224081

Survey III : October 1985



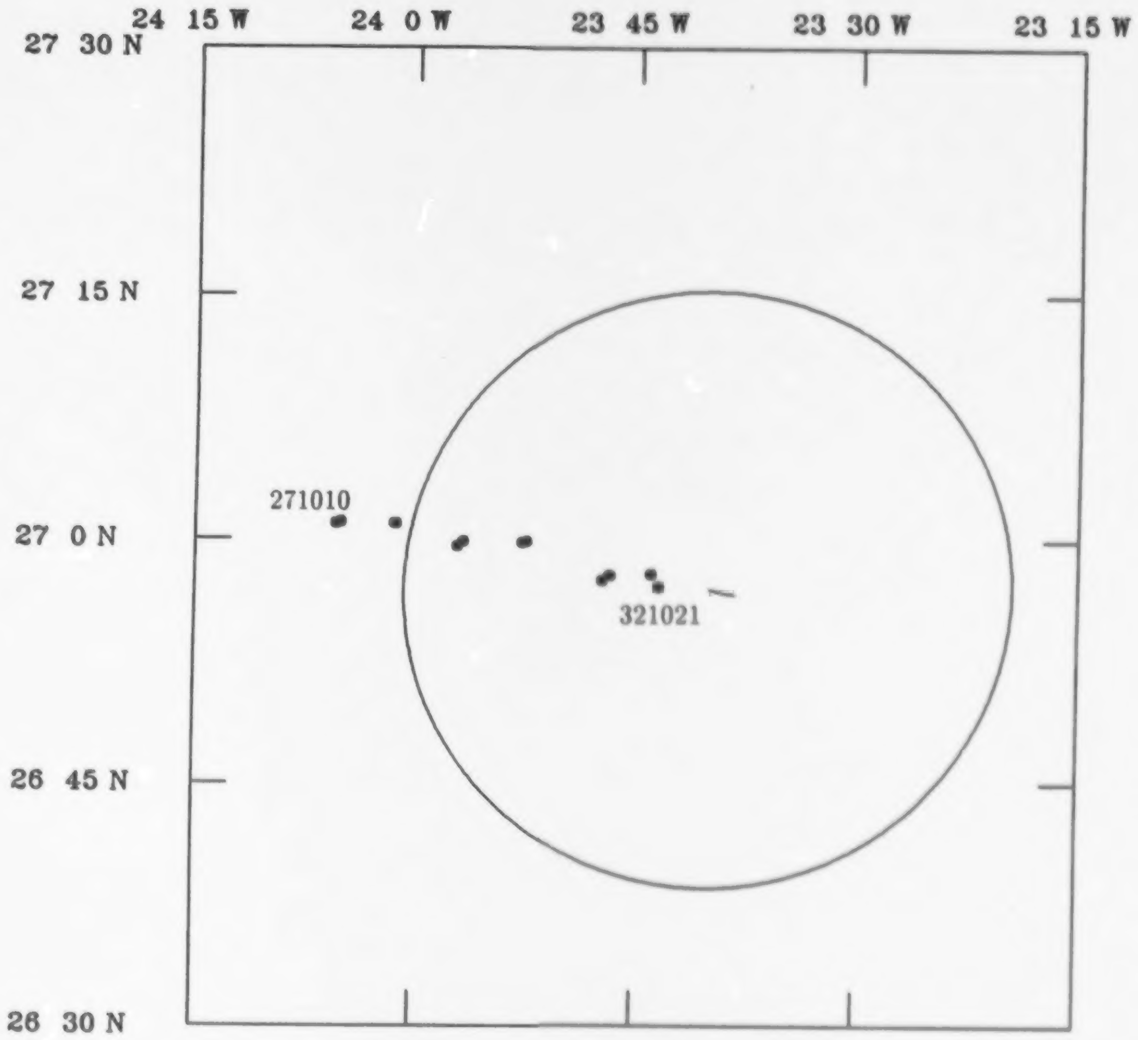

SALINITY
35
36
44
PRESSURE
0
500
2500
281021
281010
251021
251010
241021
241010
231061
231050
231041
231030
231021
231010
225111

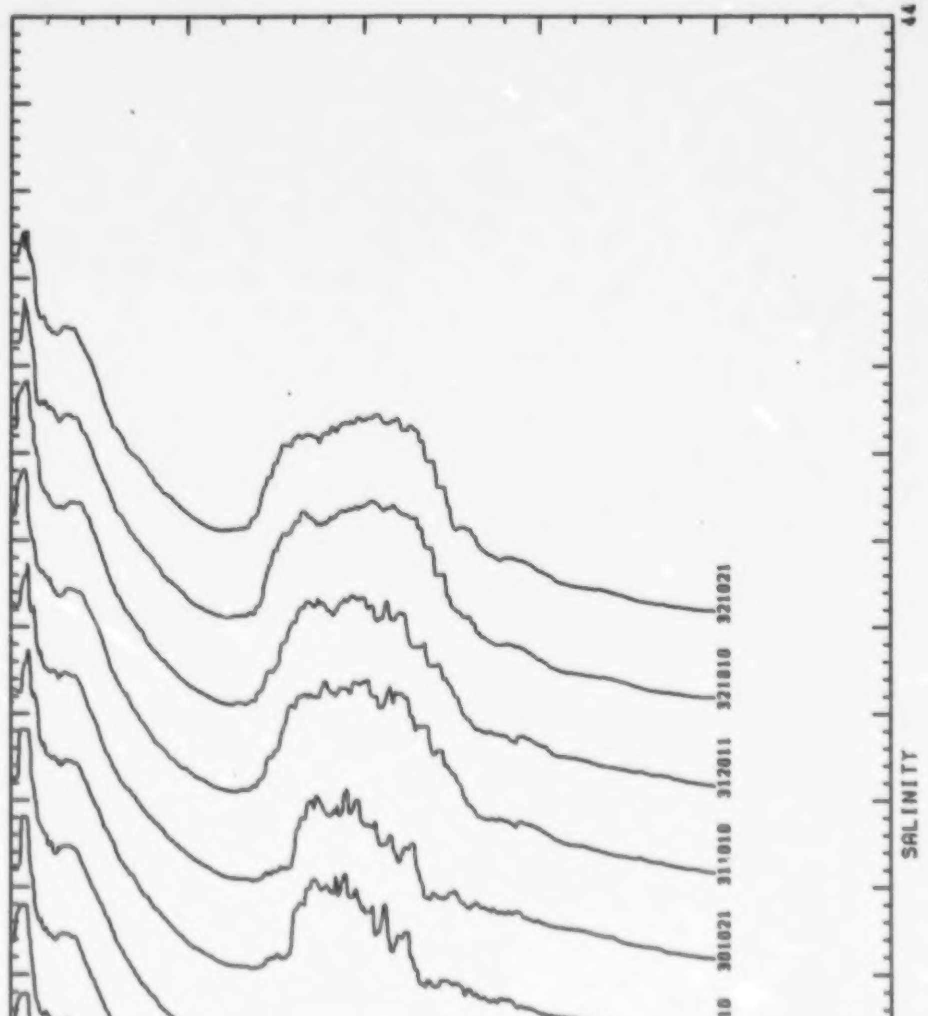

PRESSURE
0
500
2500
THETA 1
0
10
90
261021
261010
251021
251010
241021
241010
231061
231050
231041
231030
231021
231010
235111

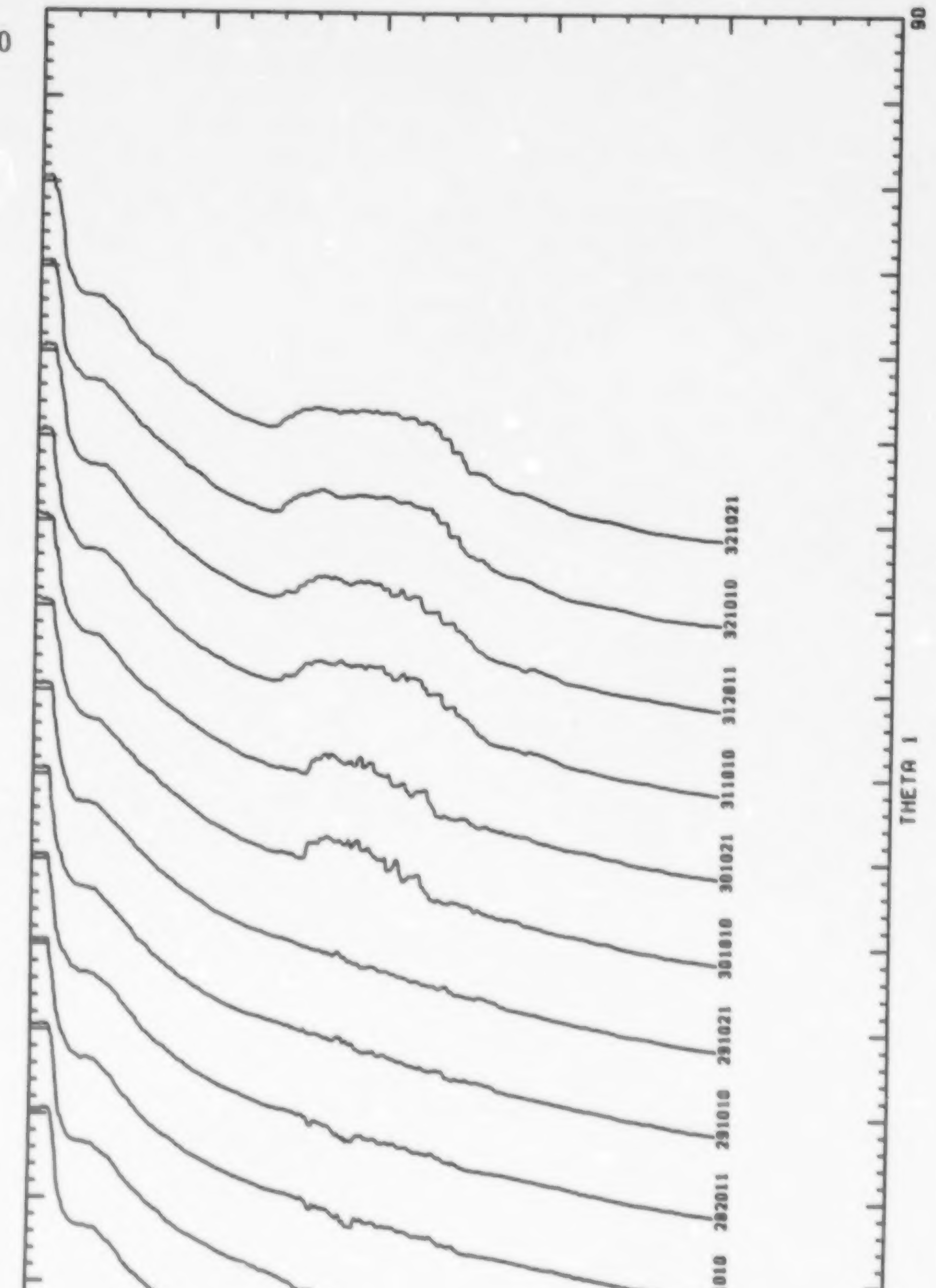


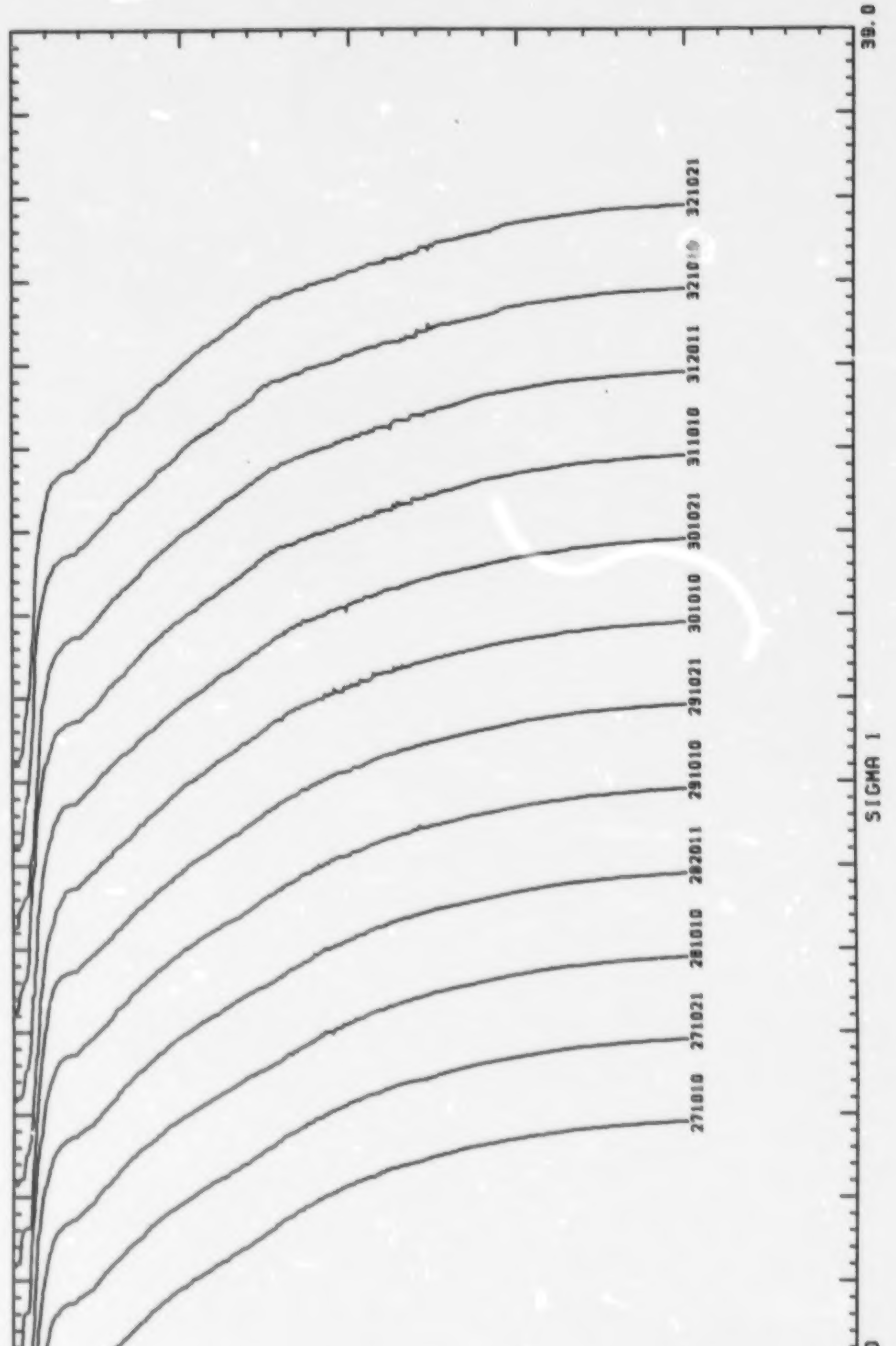
PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
281021
261010
251021
251010
241021
241010
231061
231050
231041
231030
231021
231010
225111

Survey III : October 1985

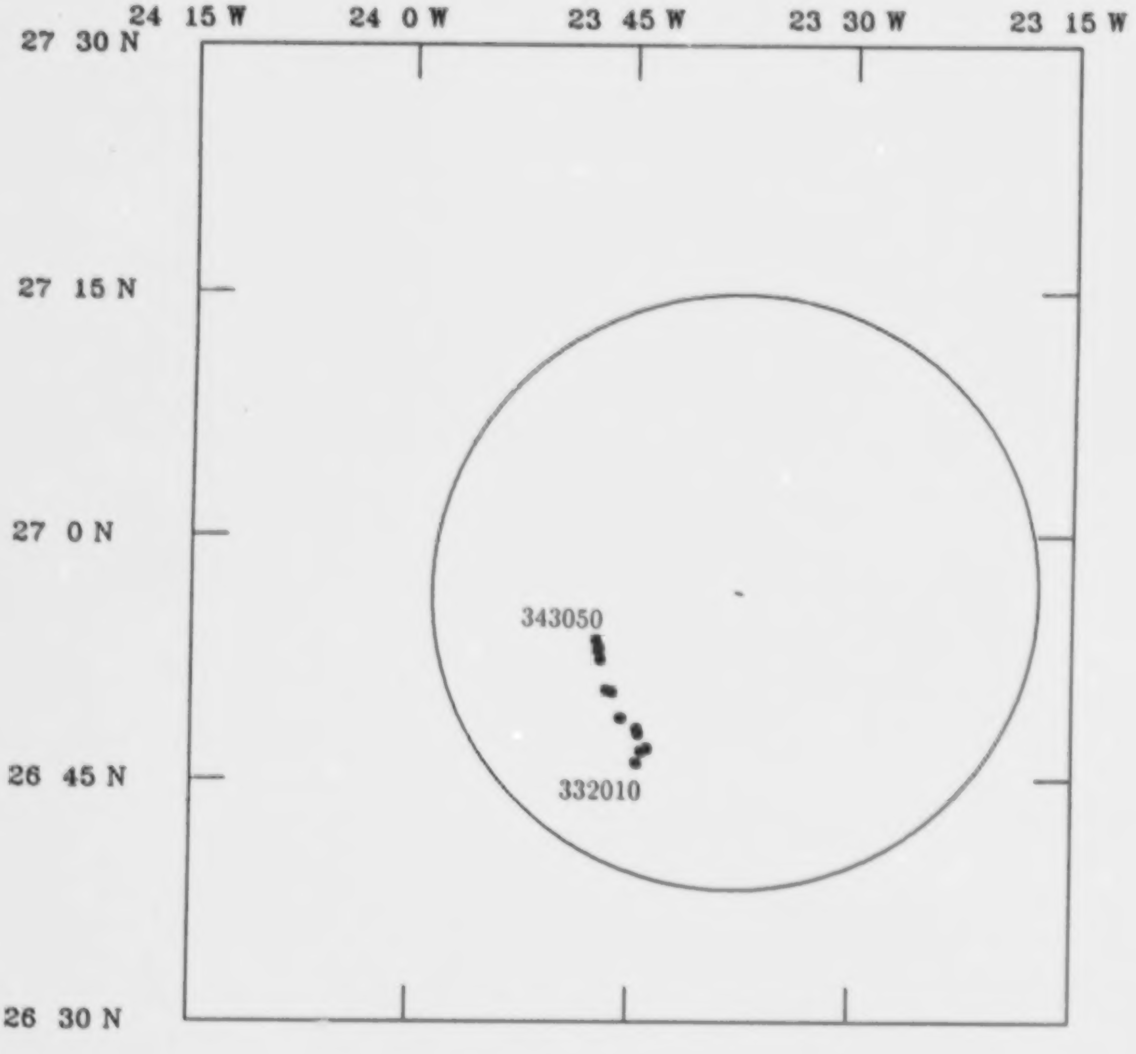


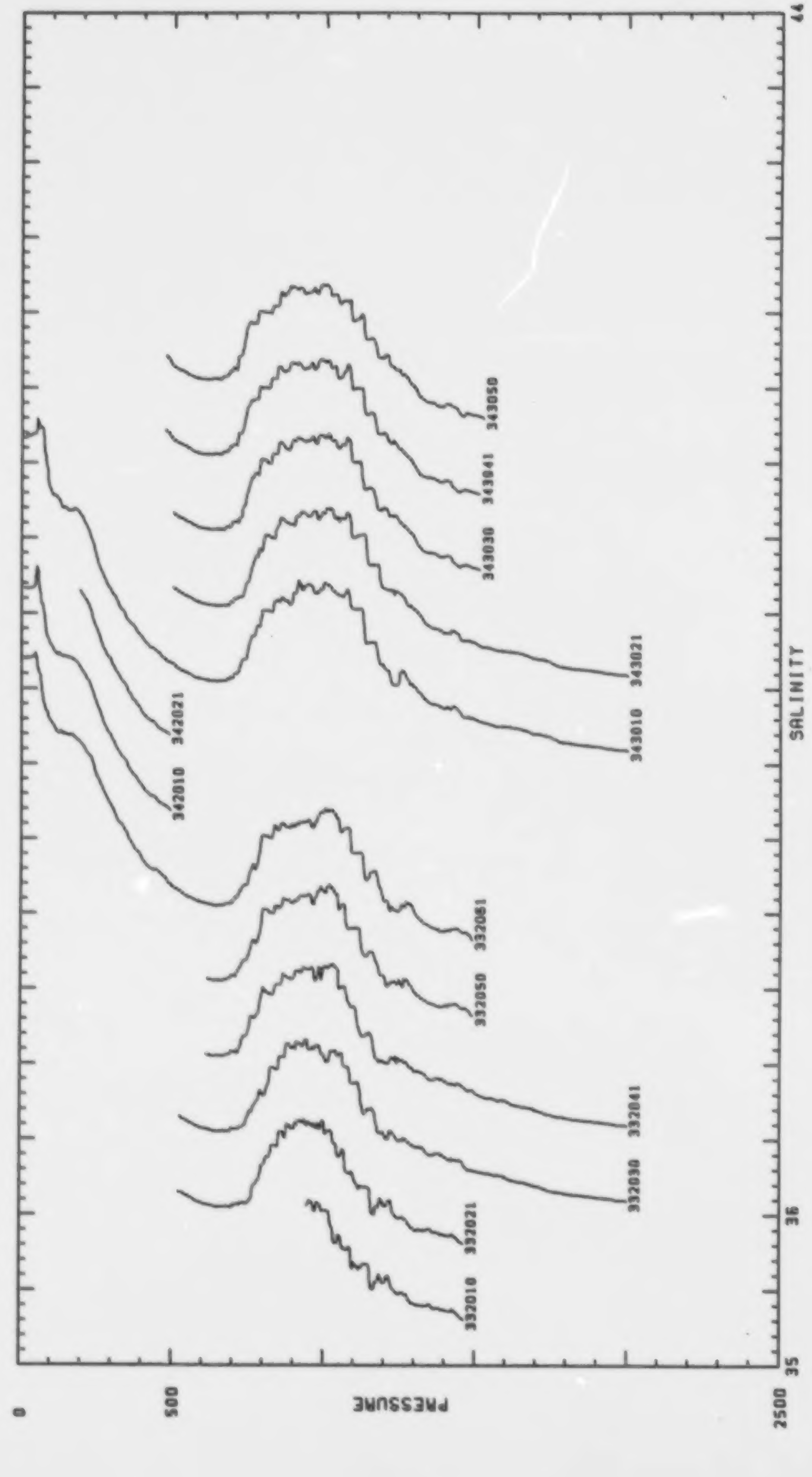

0
500
PRESSURE
2500
35
36
44
SALINITY
321021
321010
312011
311010
301021
301010
291021
291010
282011
281010
271021
271010


PRESSURE
0
500
2500
THETA 1
0
10
90
271010
271021
281010
282011
291010
291021
301010
301021
311010
312011
321010
321021

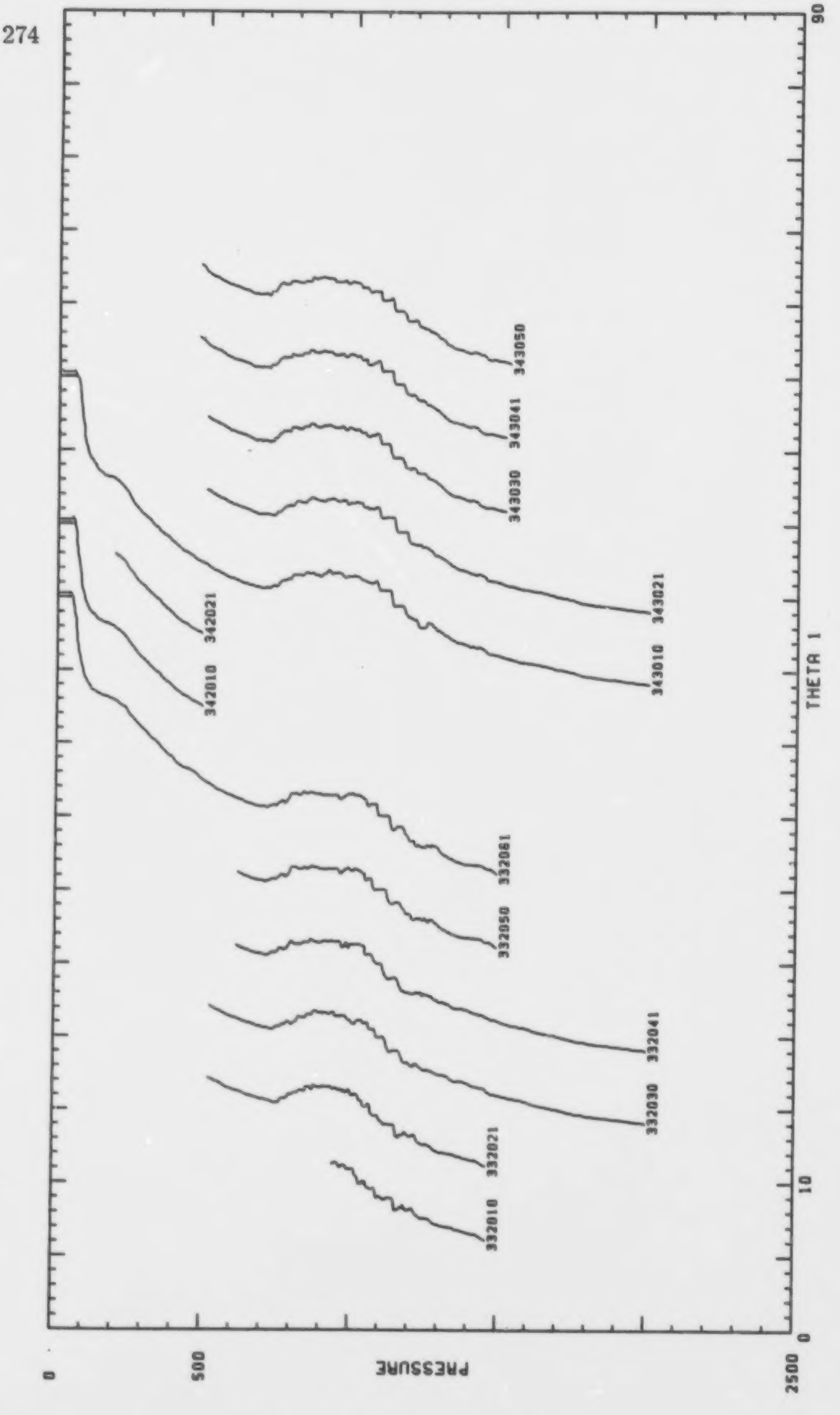

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
271010
271021
281010
282011
291010
291021
301010
301021
311010
312011
321021

Survey III : October 1985

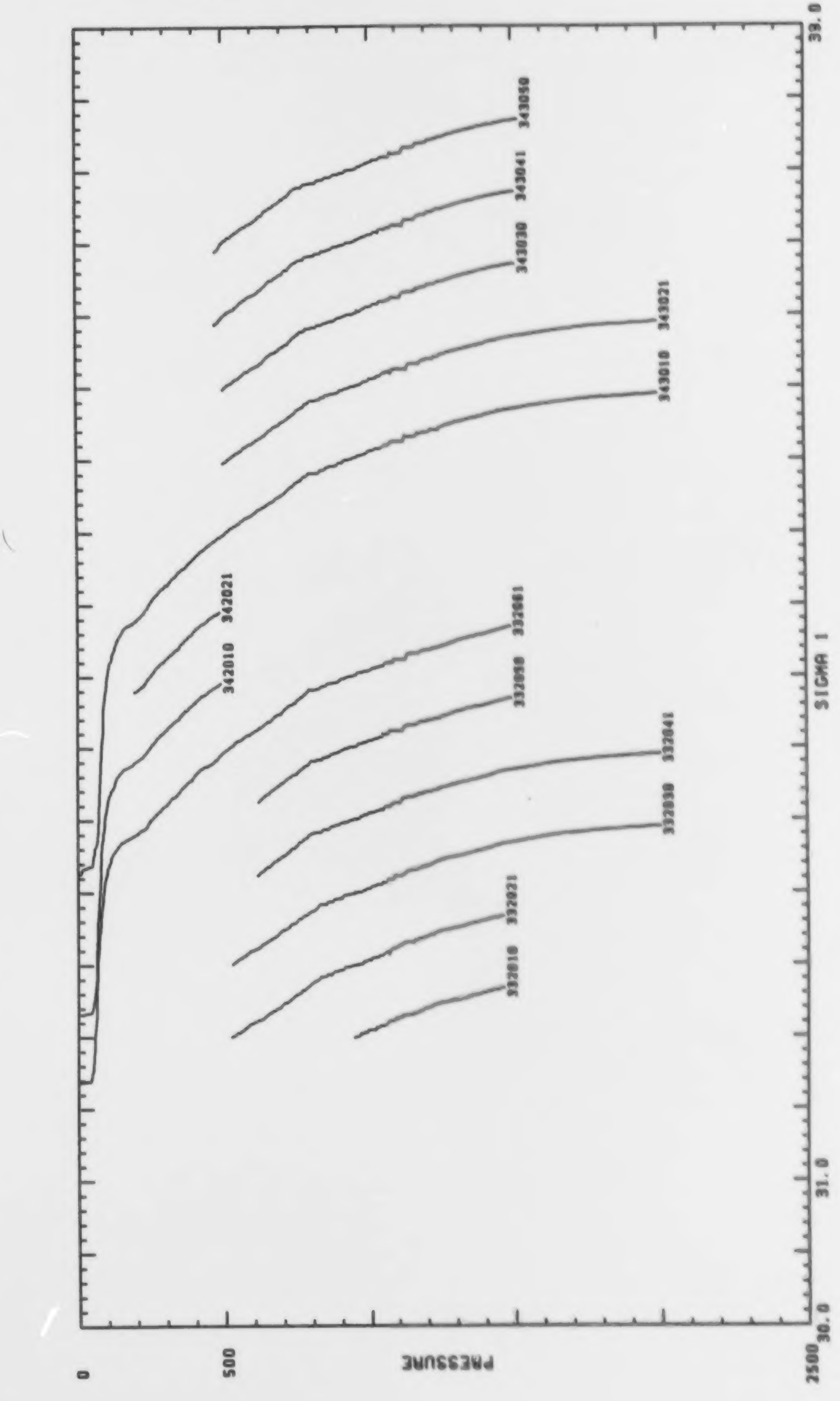




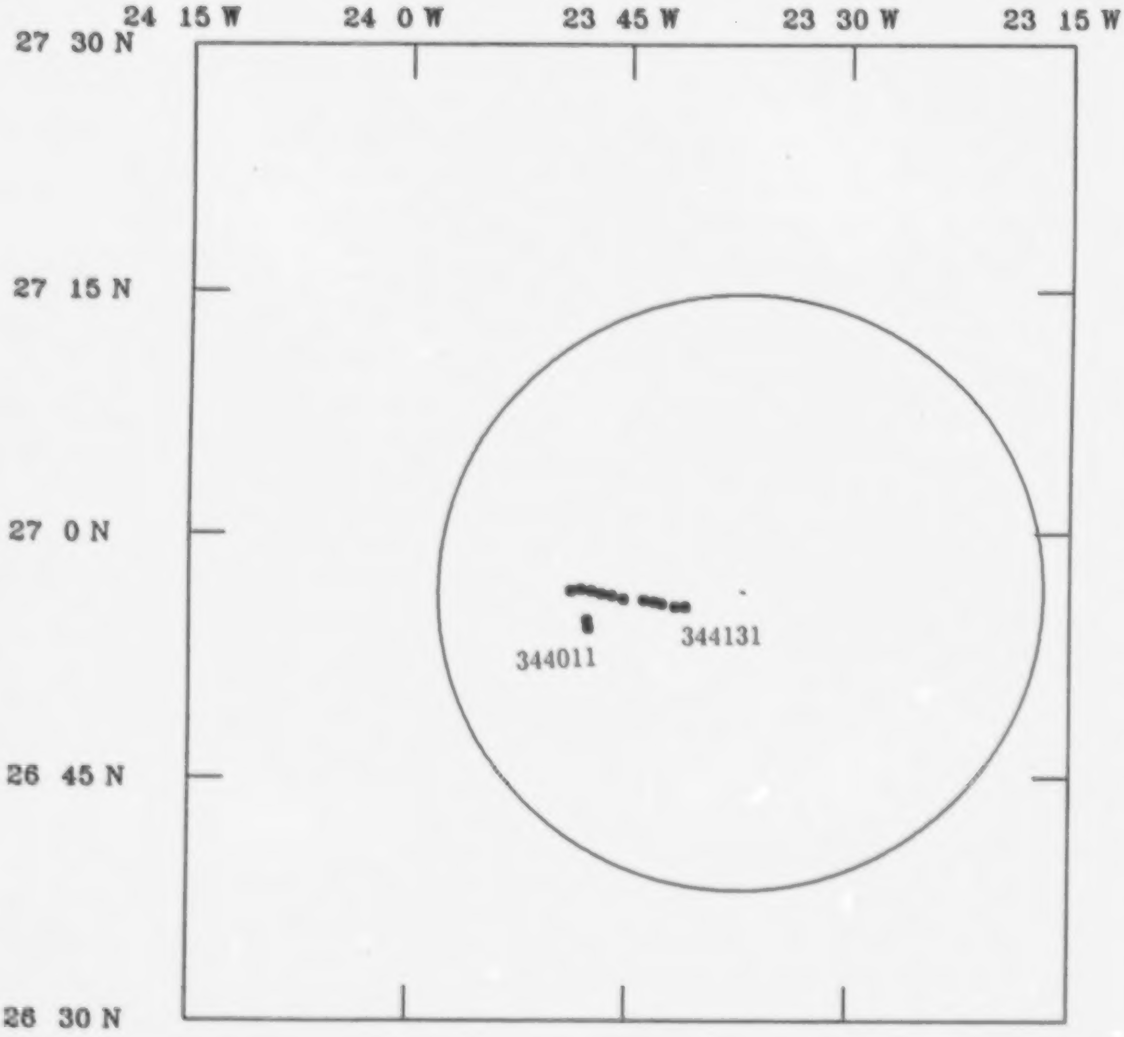
PRESSURE
0
500
2500
SALINITY
35
36
44
343050
343041
343030
343021
343010
342021
342010
332081
332050
332041
332030
332021
332010

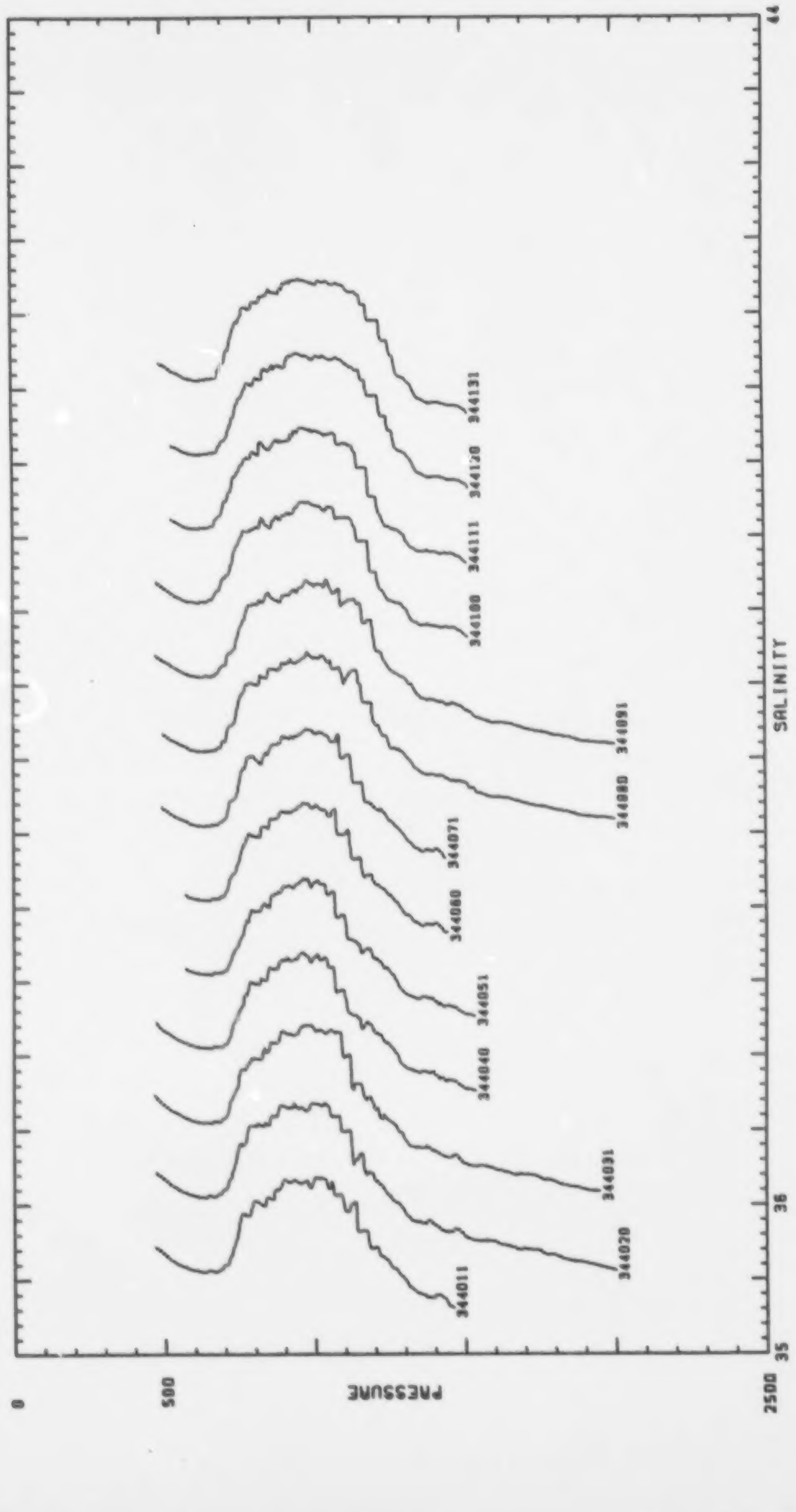


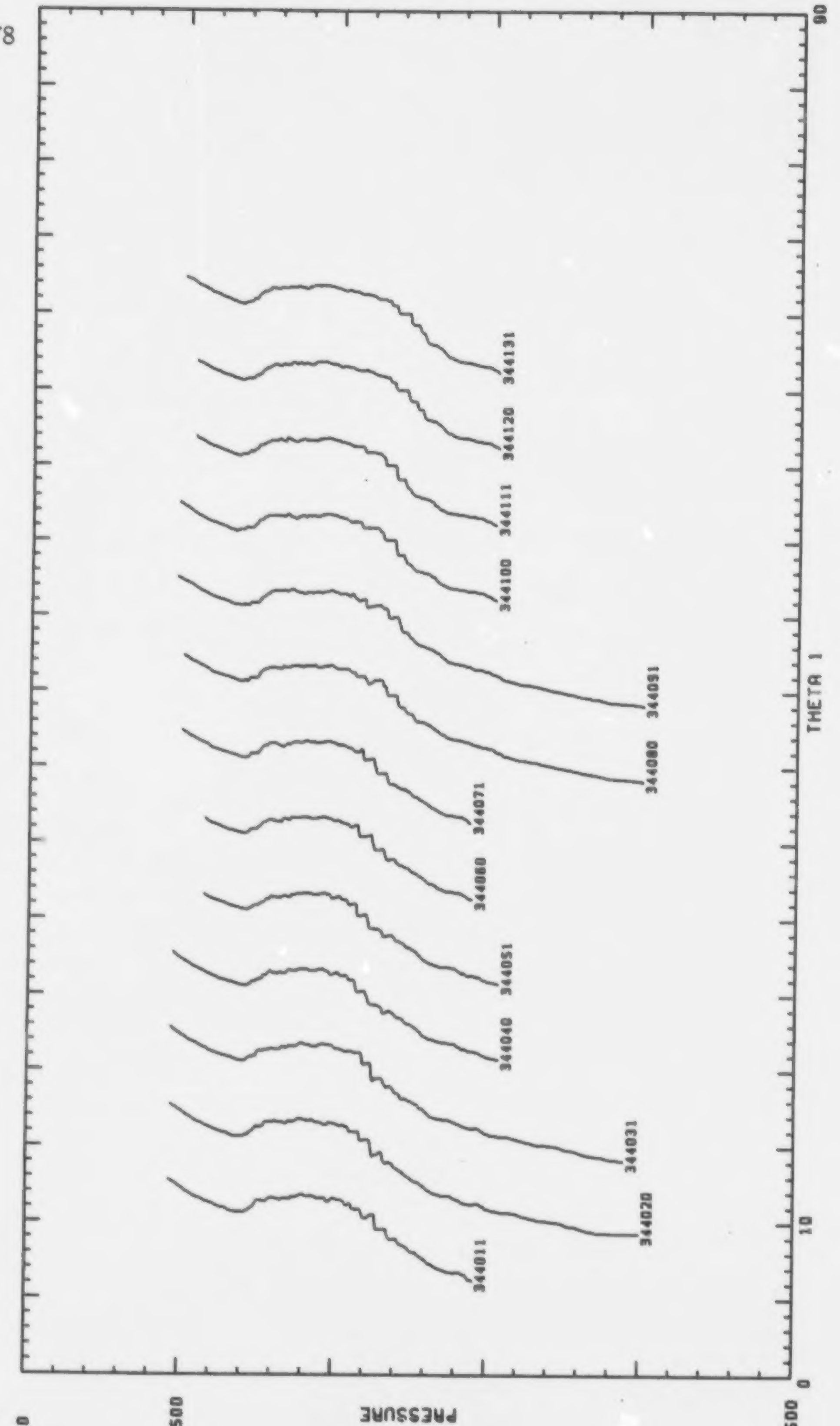
343050
343041
343030
343021
343010
342021
342010
332081
332050
332041
332030
332021
332010
THETA 1
PRESSURE
0
500
2500
10
90

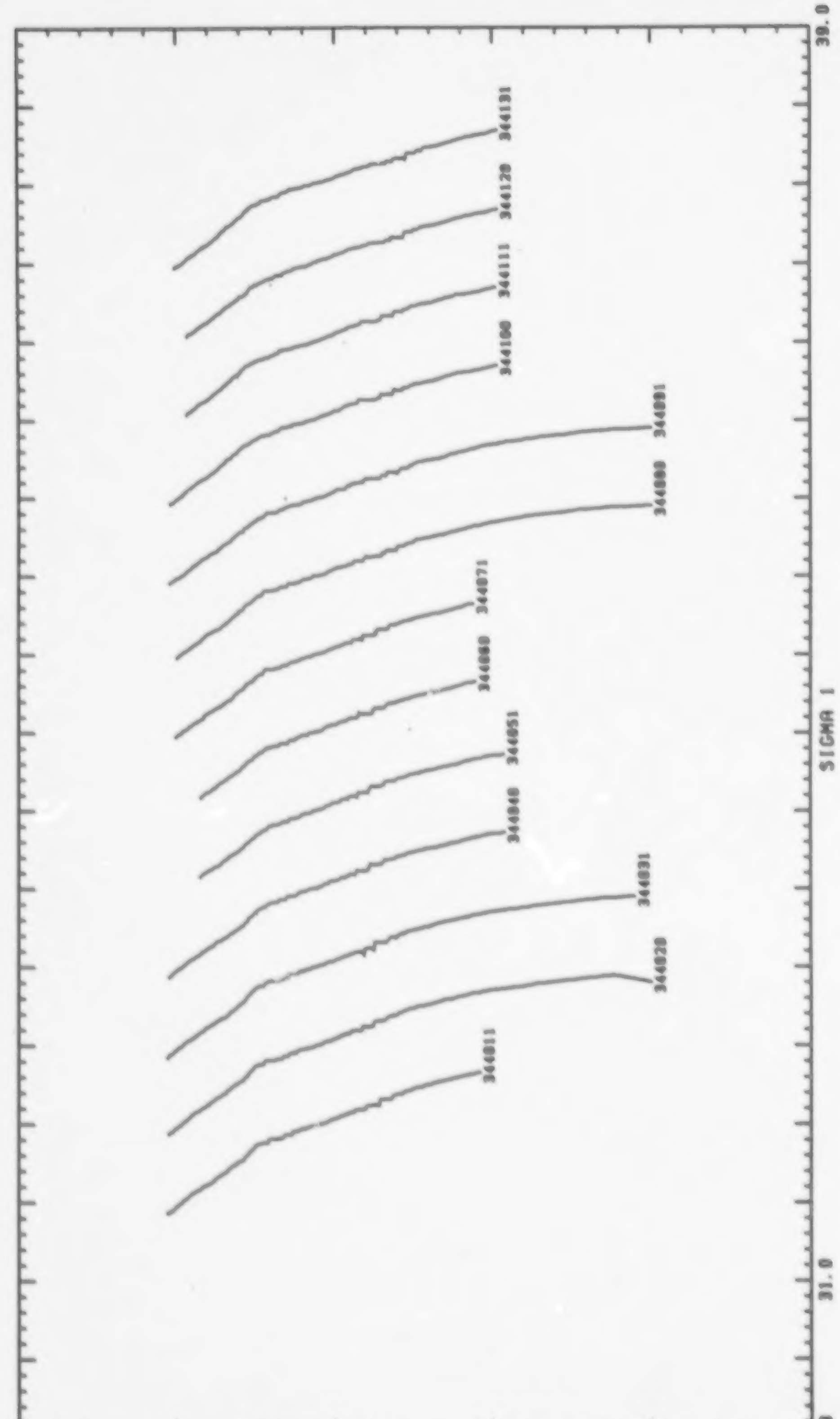

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
343050
343041
343030
343021
343010
342021
342010
332061
332050
332041
332030
332021
332010

Survey III : October 1985



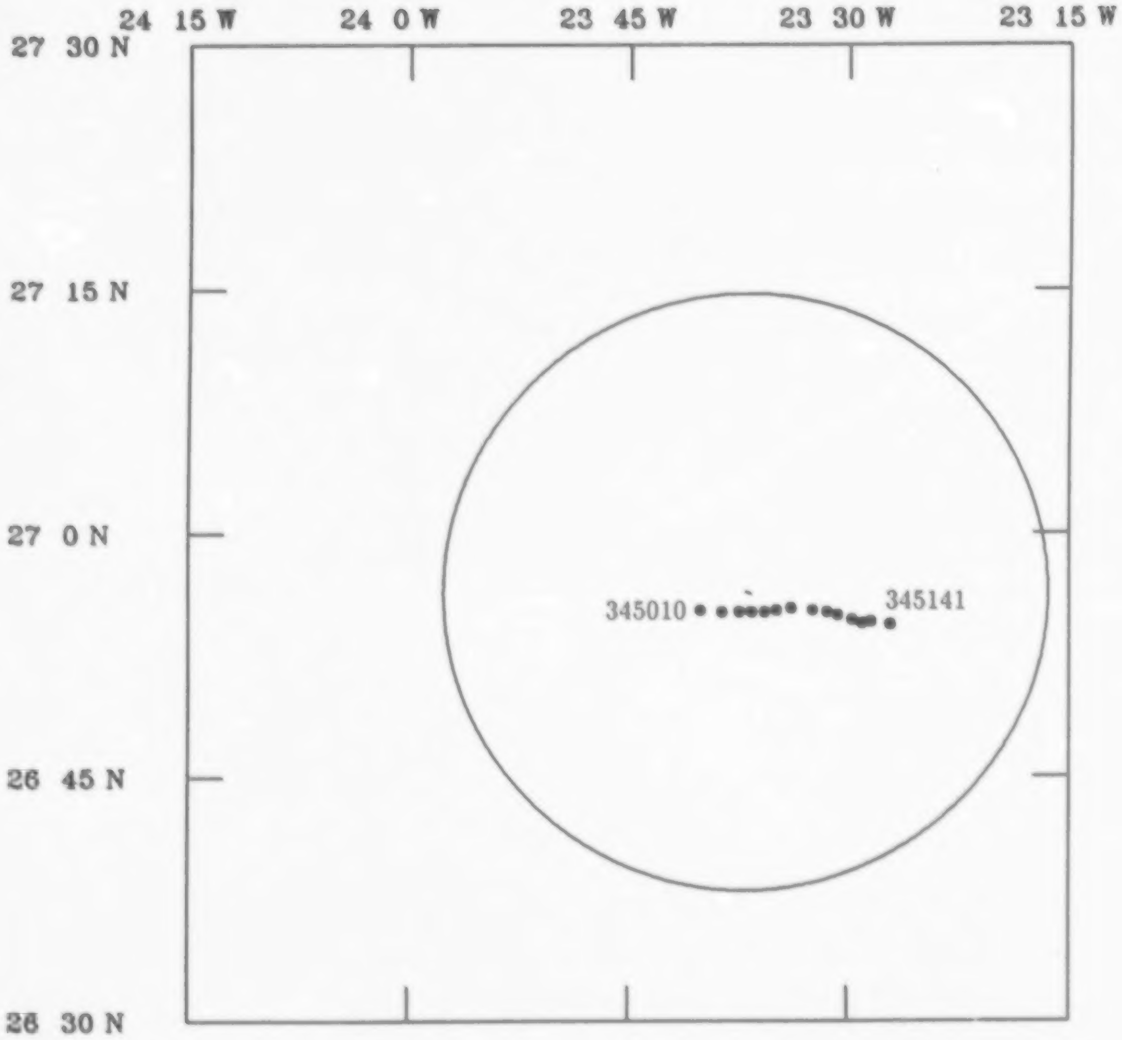

PRESSURE
0
500
2500
SALINITY
35
38
44
344011
344020
344031
344040
344051
344060
344071
344080
344091
344100
344111
344120
344131

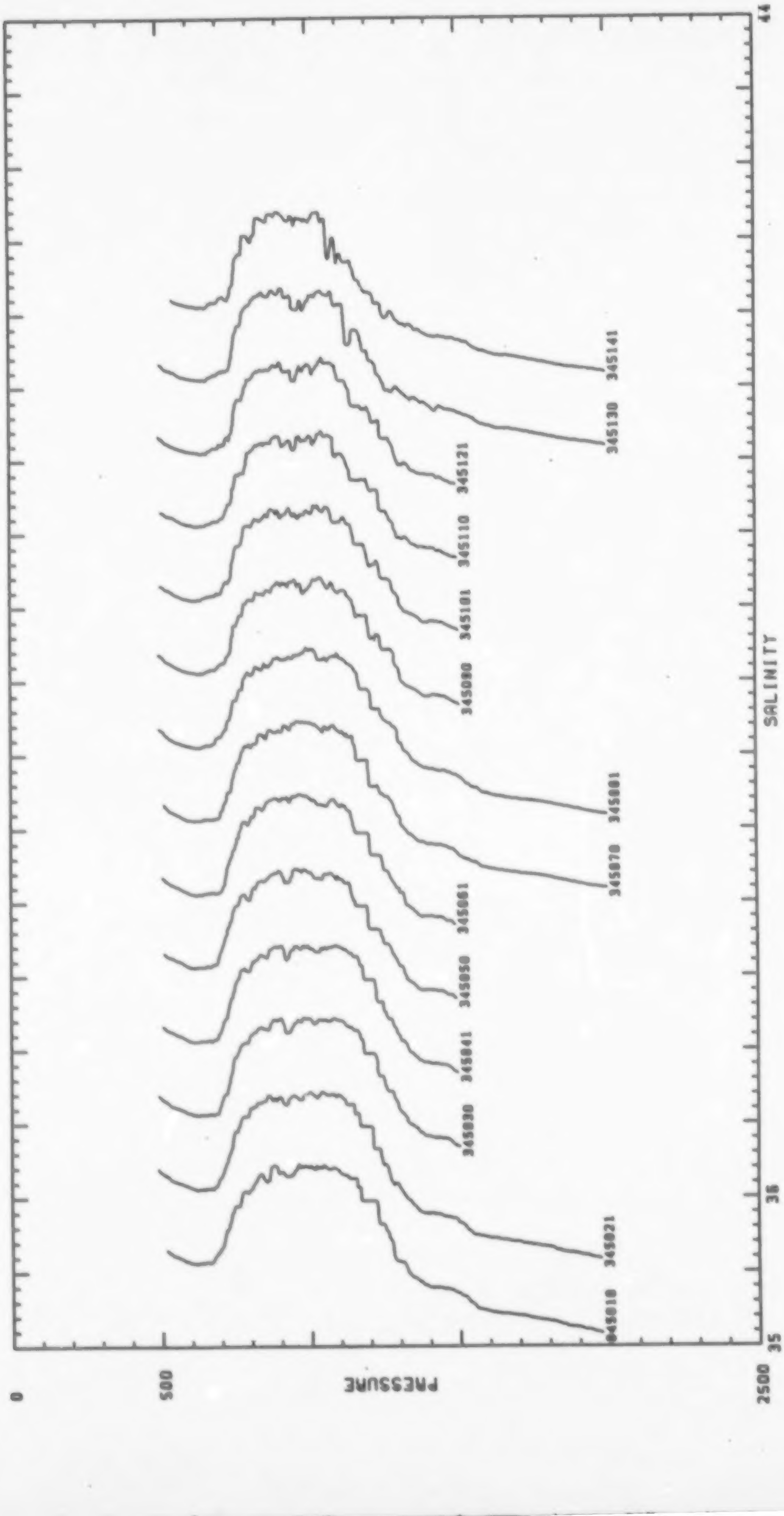

PRESSURE
0
500
2500
THETA 1
0
10
90
344011
344020
344031
344040
344051
344060
344071
344080
344091
344100
344111
344120
344131

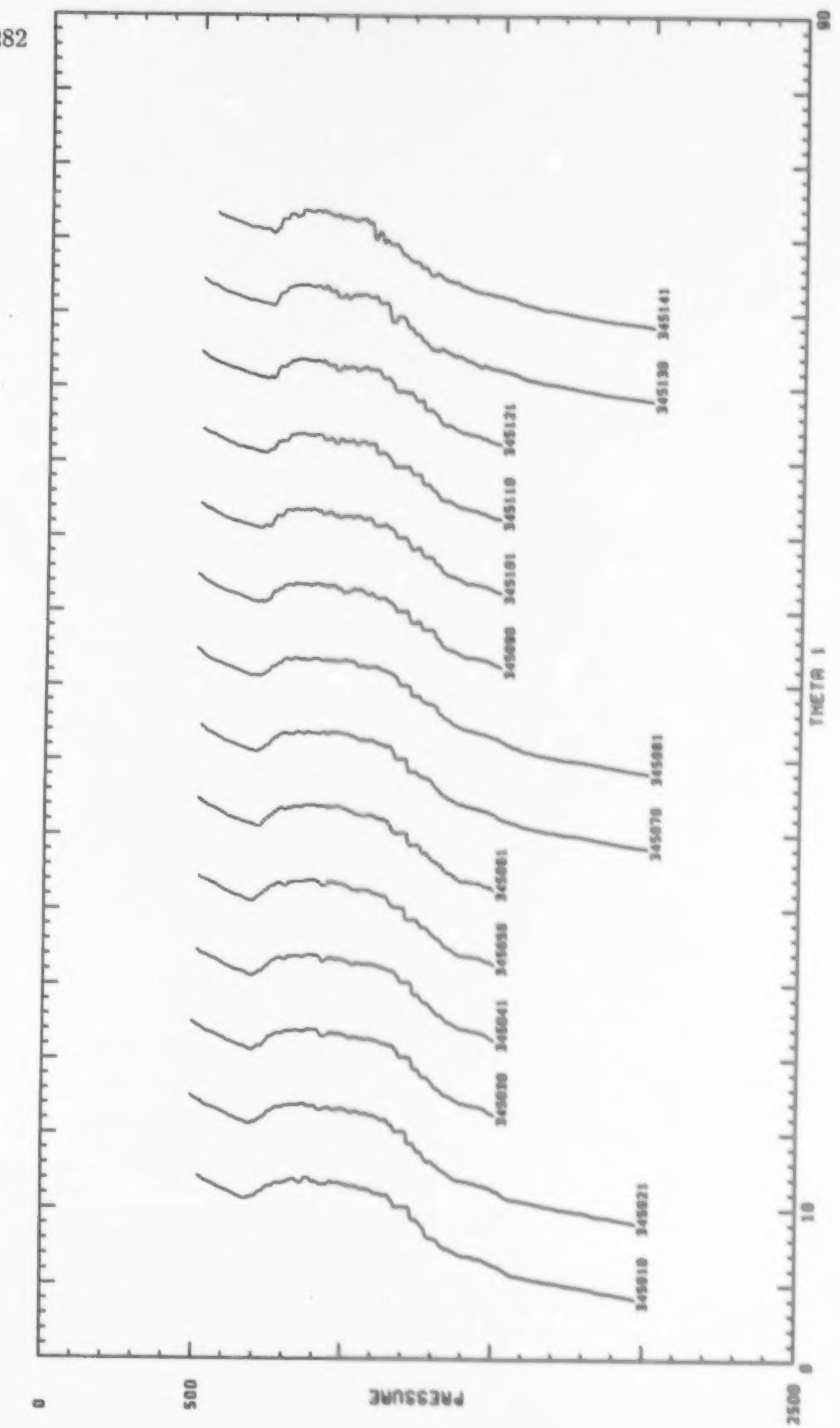


PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
344011
344020
344031
344040
344051
344060
344071
344080
344091
344100
344111
344120
344131

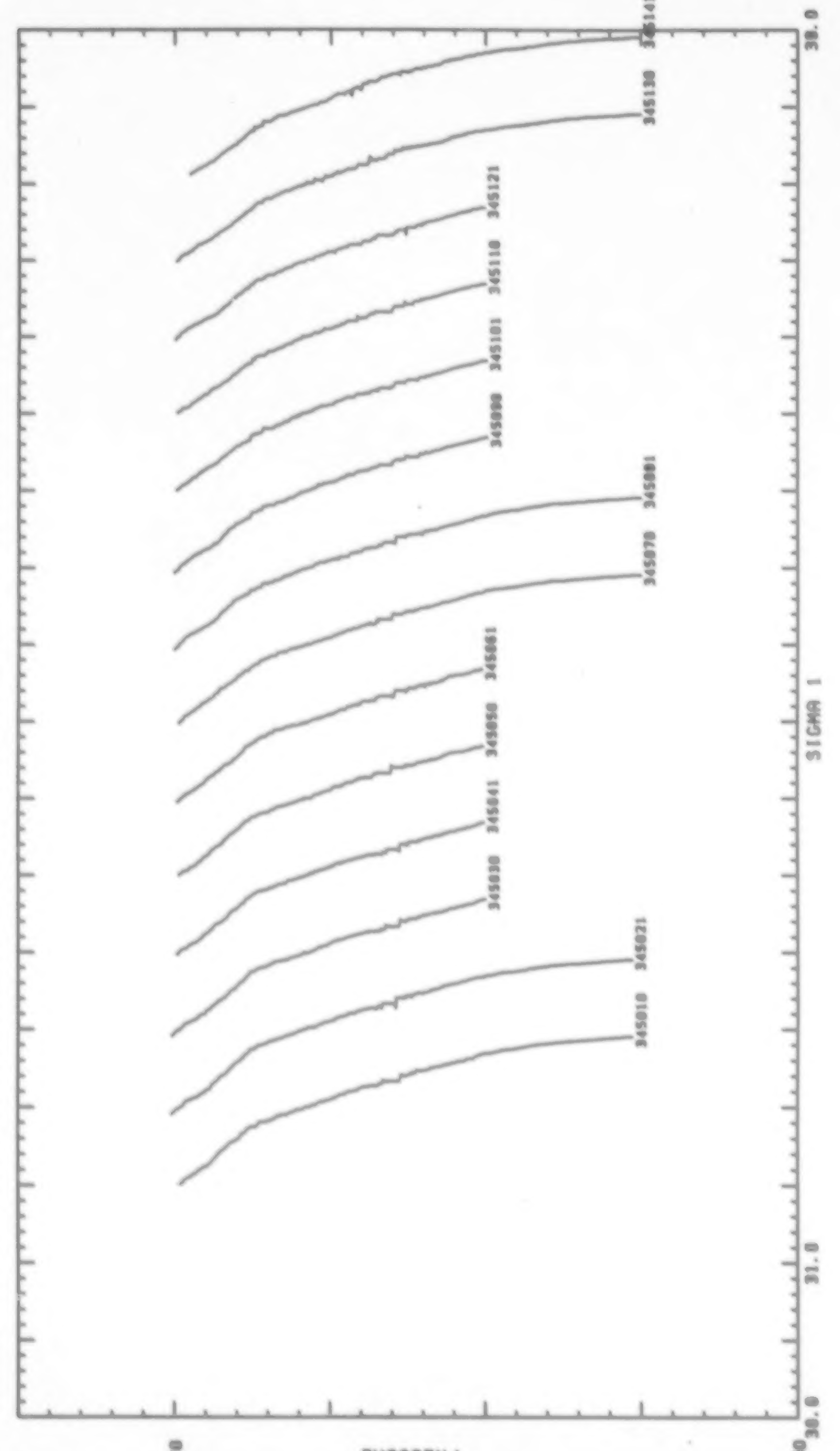
Survey III : October 1985



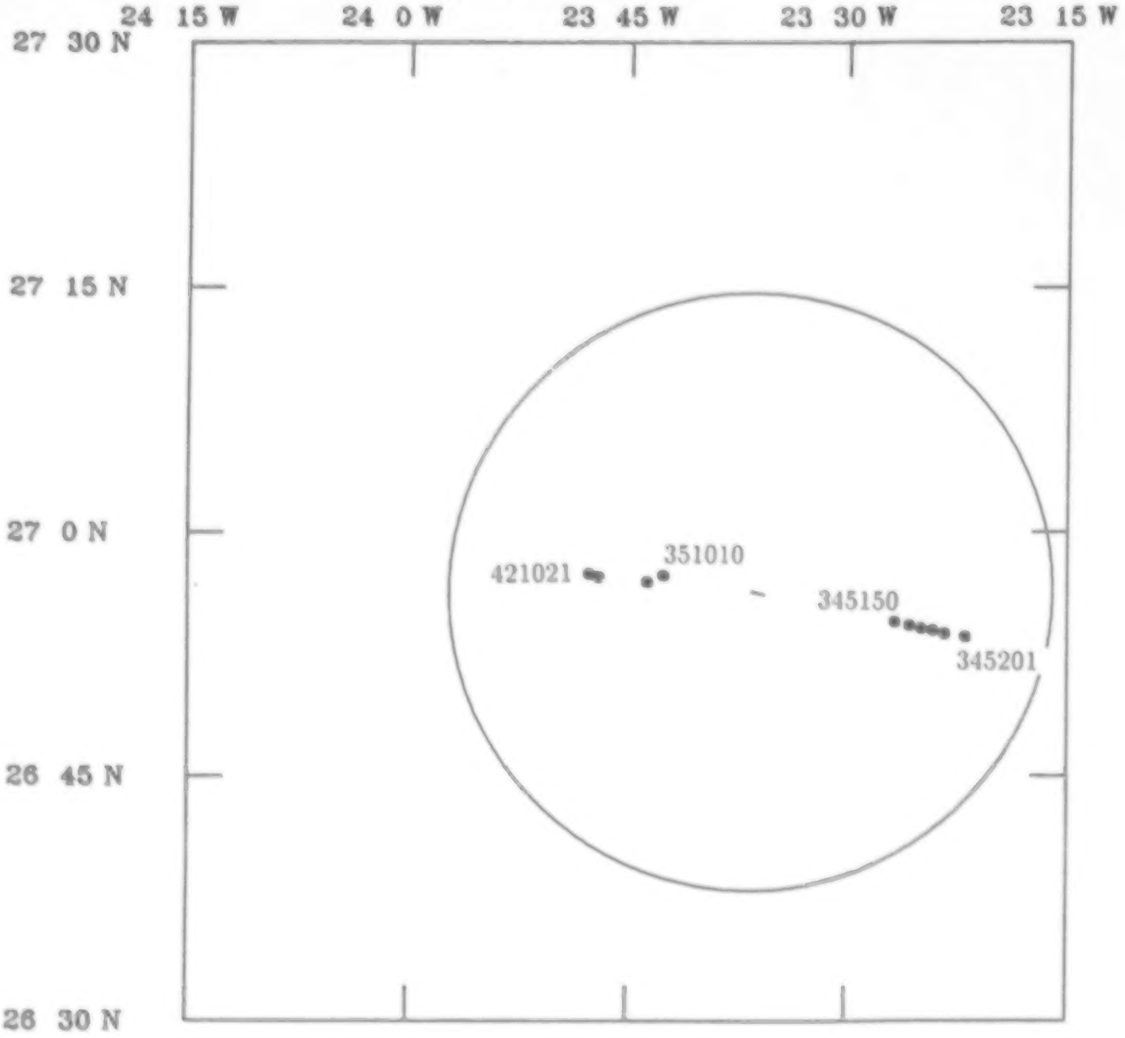

0
500
2500
PRESSURE
35
38
44
SALINITY
345141
345130
345121
345110
345101
345090
345081
345070
345061
345050
345041
345030
345021
345010

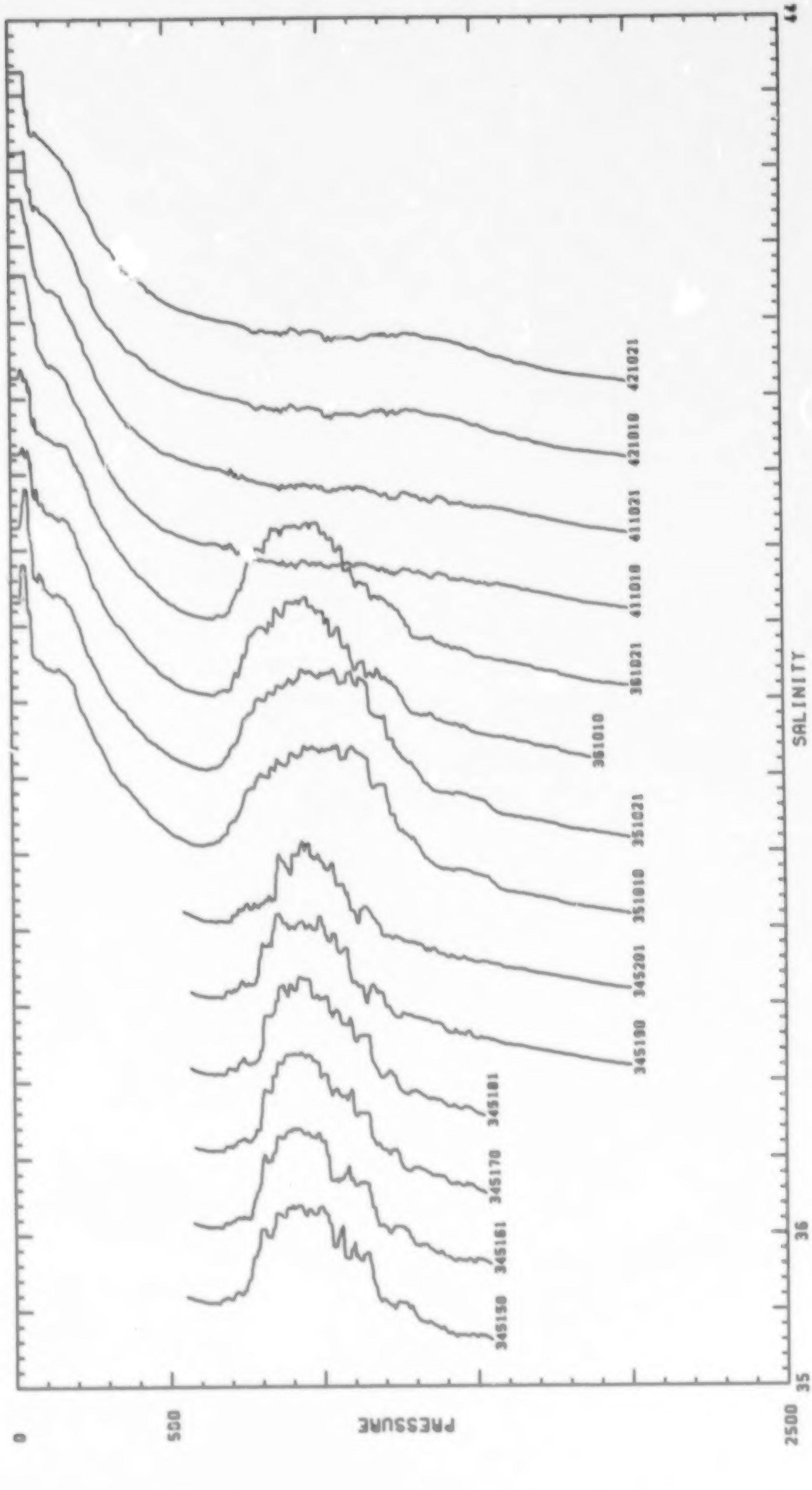


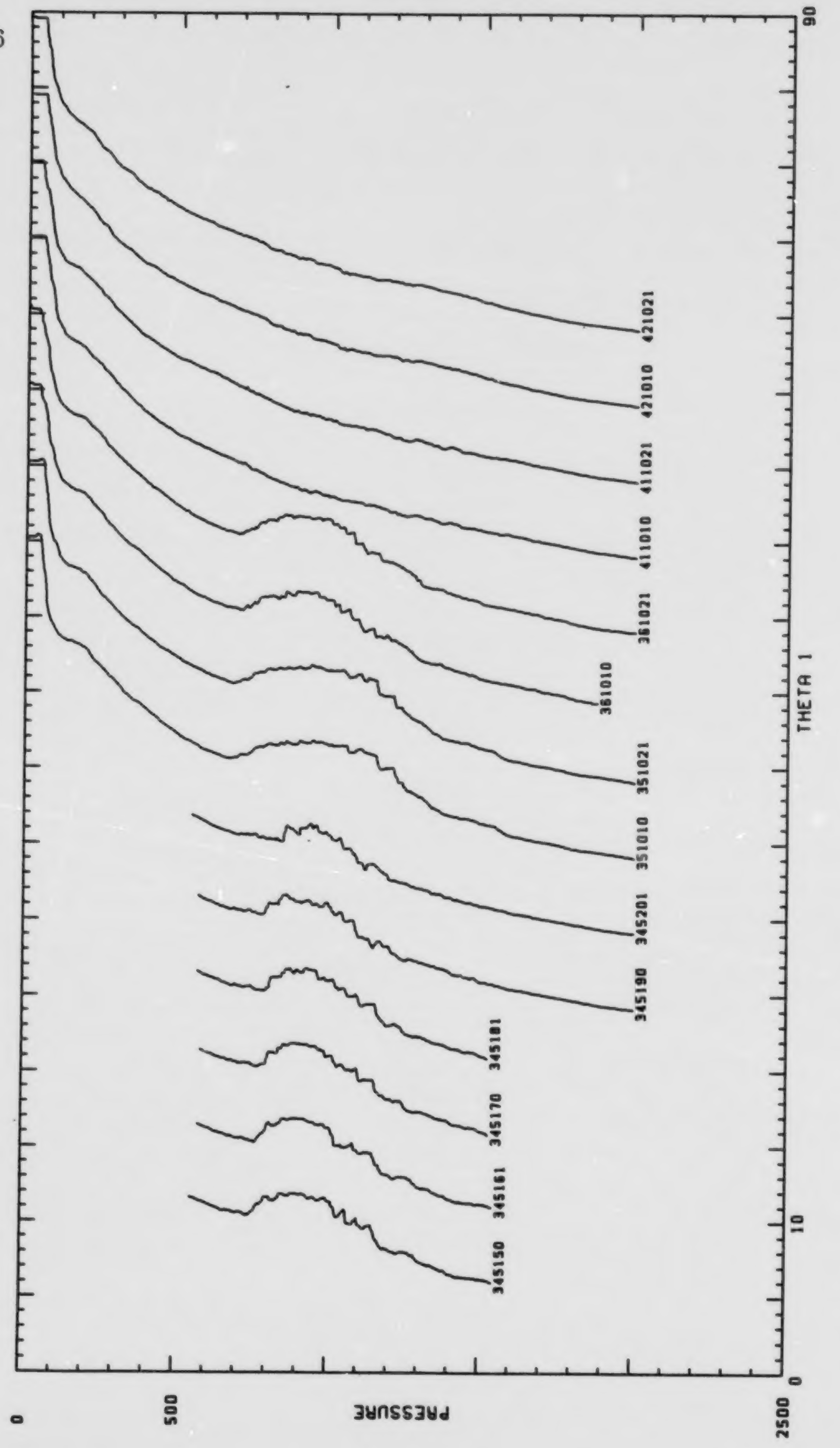
PRESSURE
THETA 1
0
500
2500
0
10
90
345010
345021
345070
345081
345101
345110
345121
345130
345141

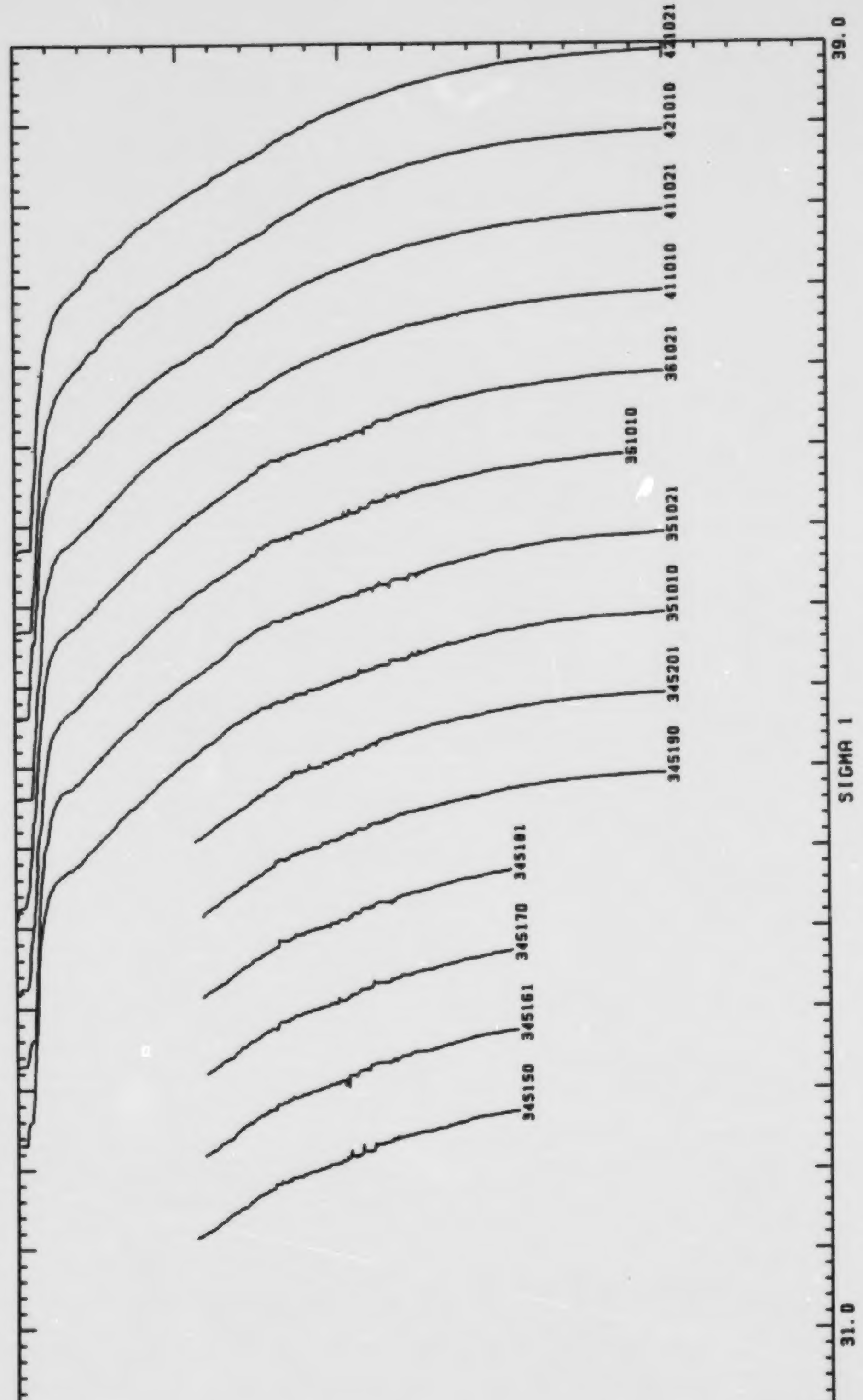

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
345010
345021
345030
345041
345050
345061
345070
345081
345090
345101
345110
345121
345130
345141

Survey III : October 1985

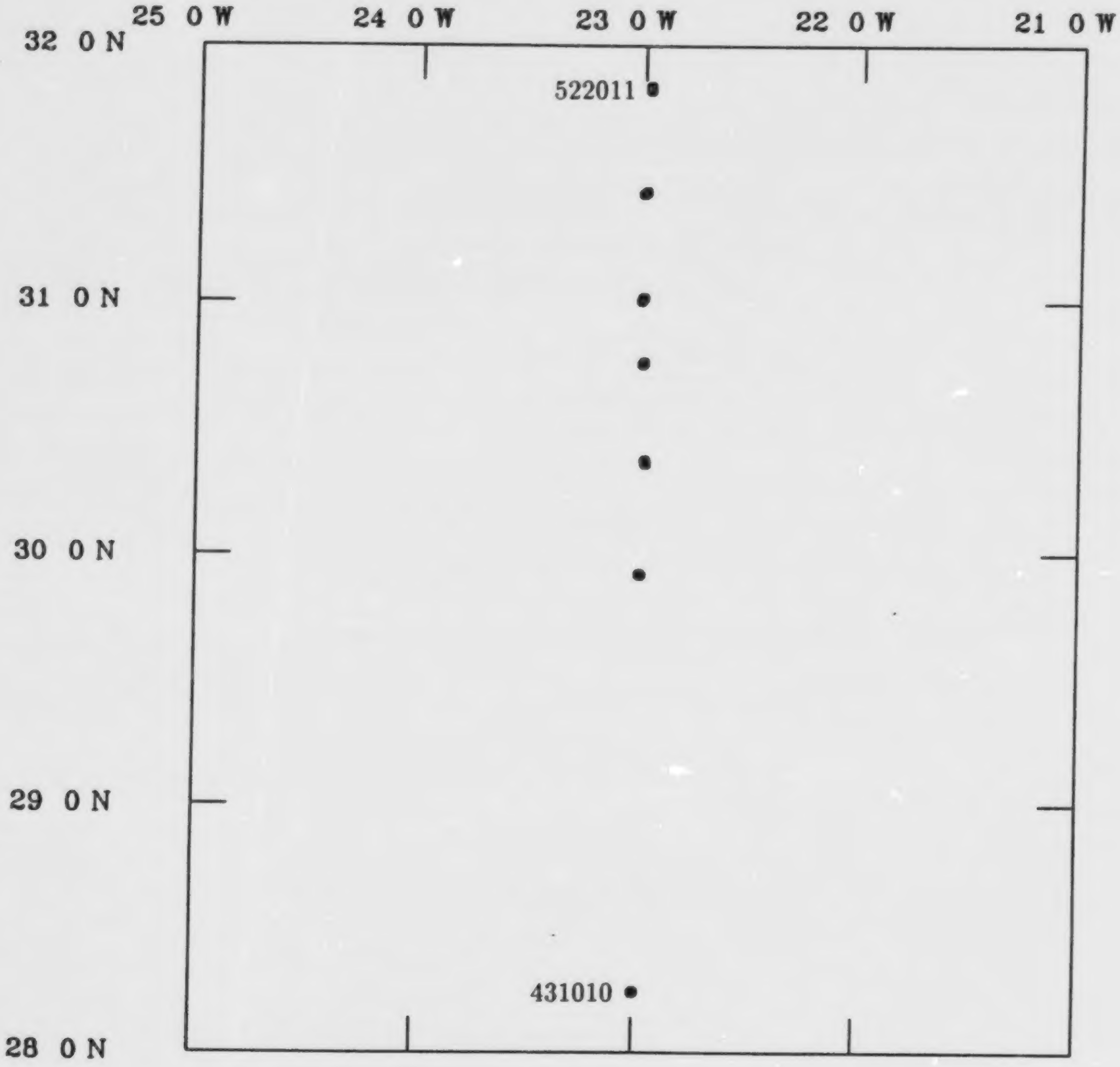


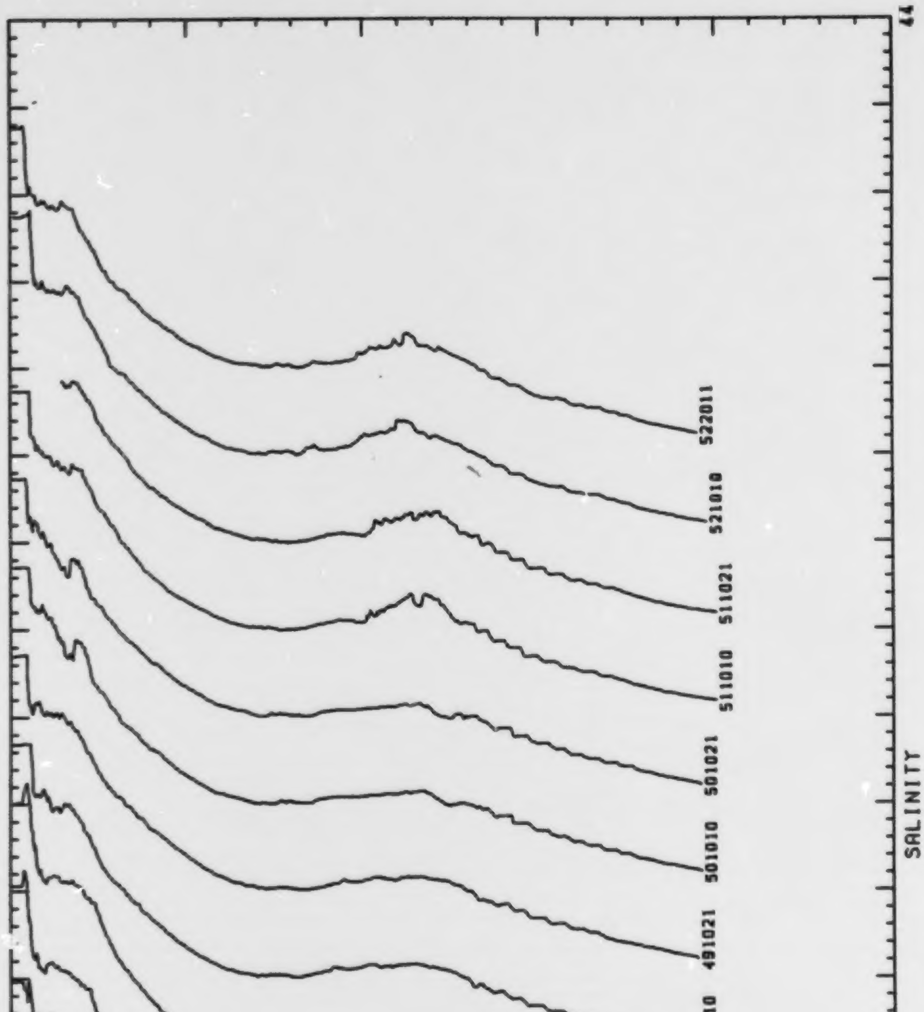

421021
421010
411021
411010
361021
361010
351021
351010
345201
345190
345181
345170
345161
345150
PRESSURE
0
500
2500
SALINITY
35
36
44


PRESSURE
0
500
2500
THETA 1
0
10
90
421021
421010
411021
411010
361021
361010
351021
351010
345201
345190
345181
345170
345161
345150

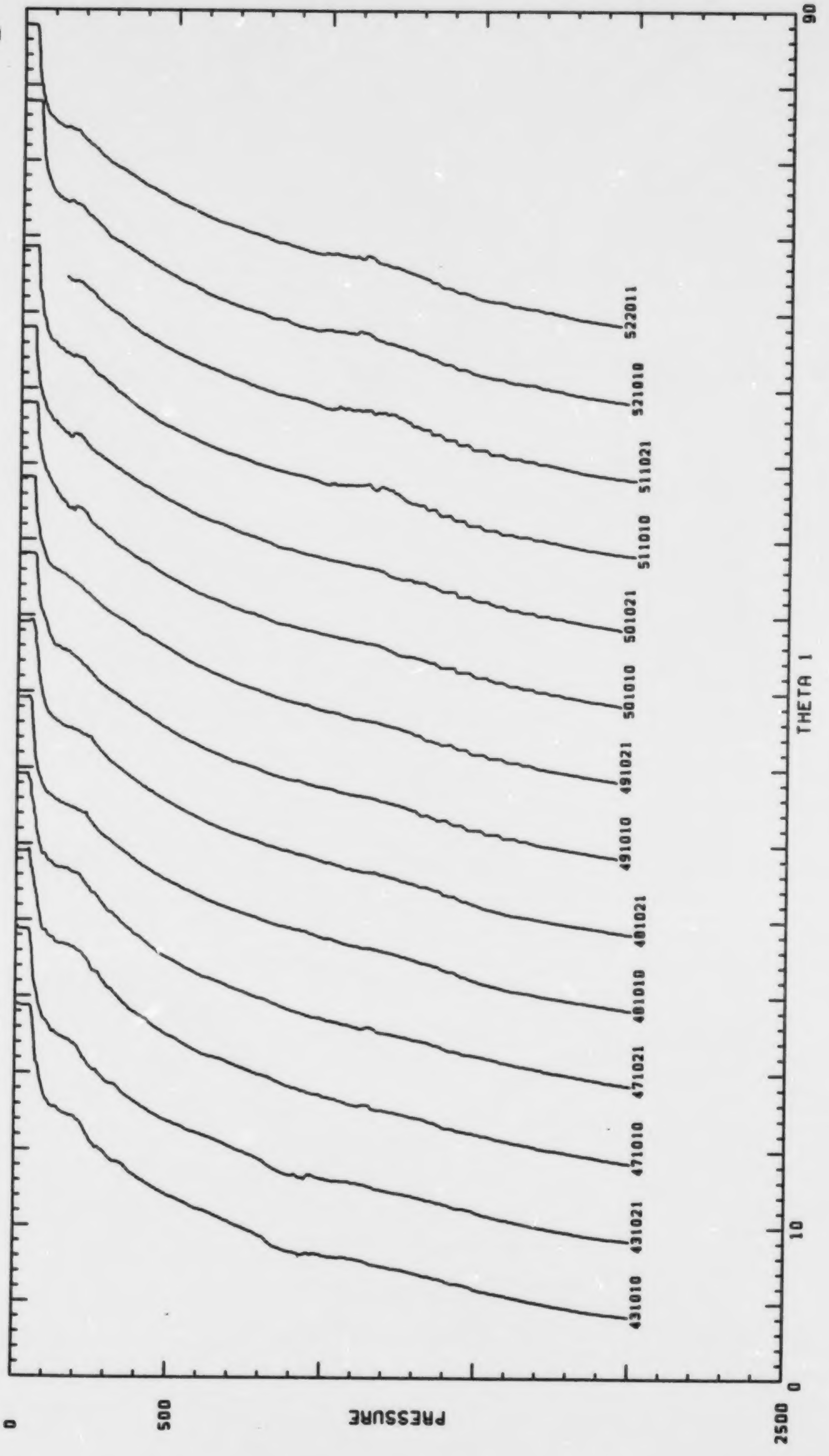

421021
421010
411021
411010
361021
361010
351021
351010
345201
345190
345181
345170
345161
345150
SIGMA 1
39.0
31.0
30.0
PRESSURE
0
500
2500

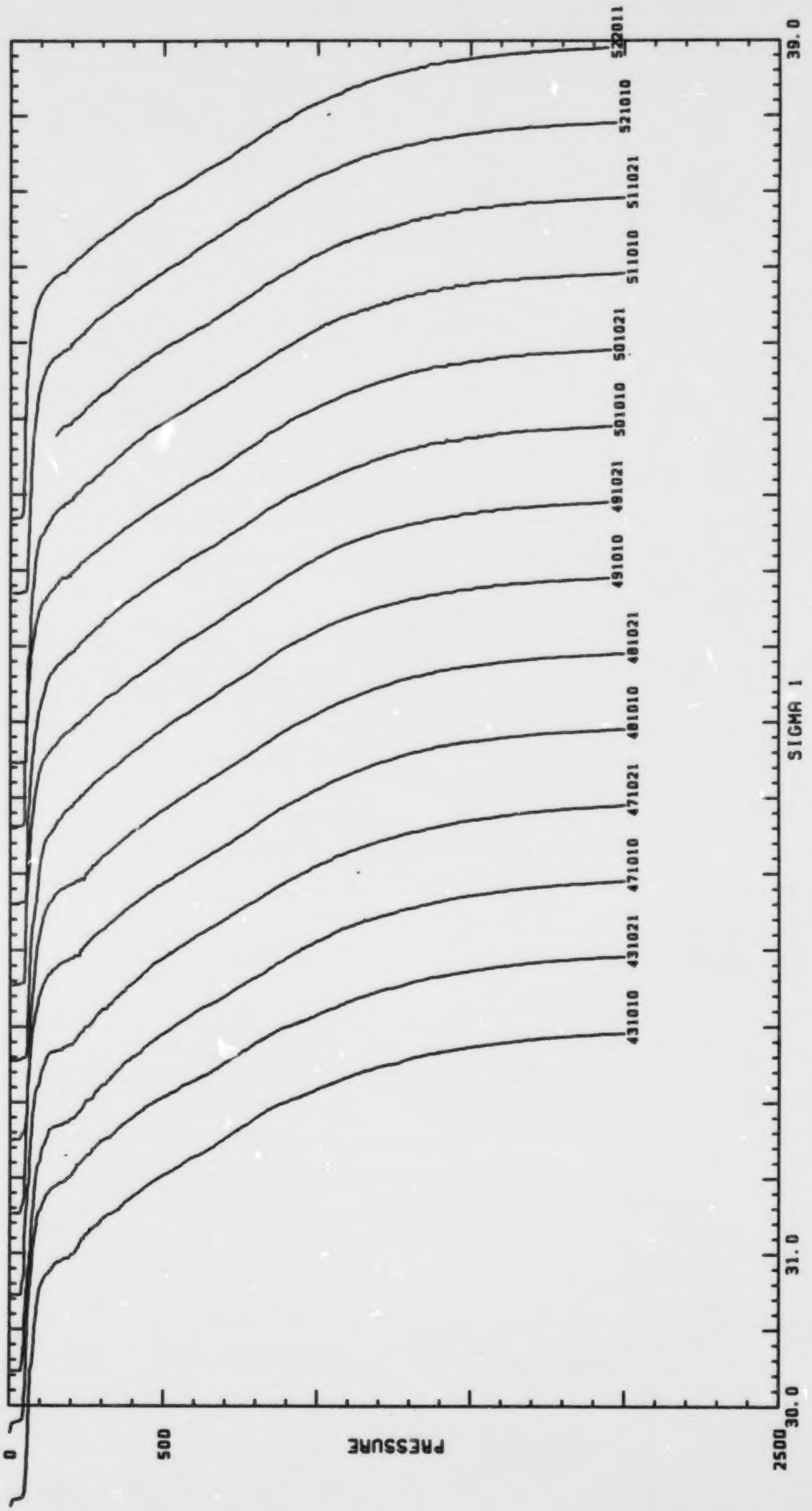
Survey III : October 1985



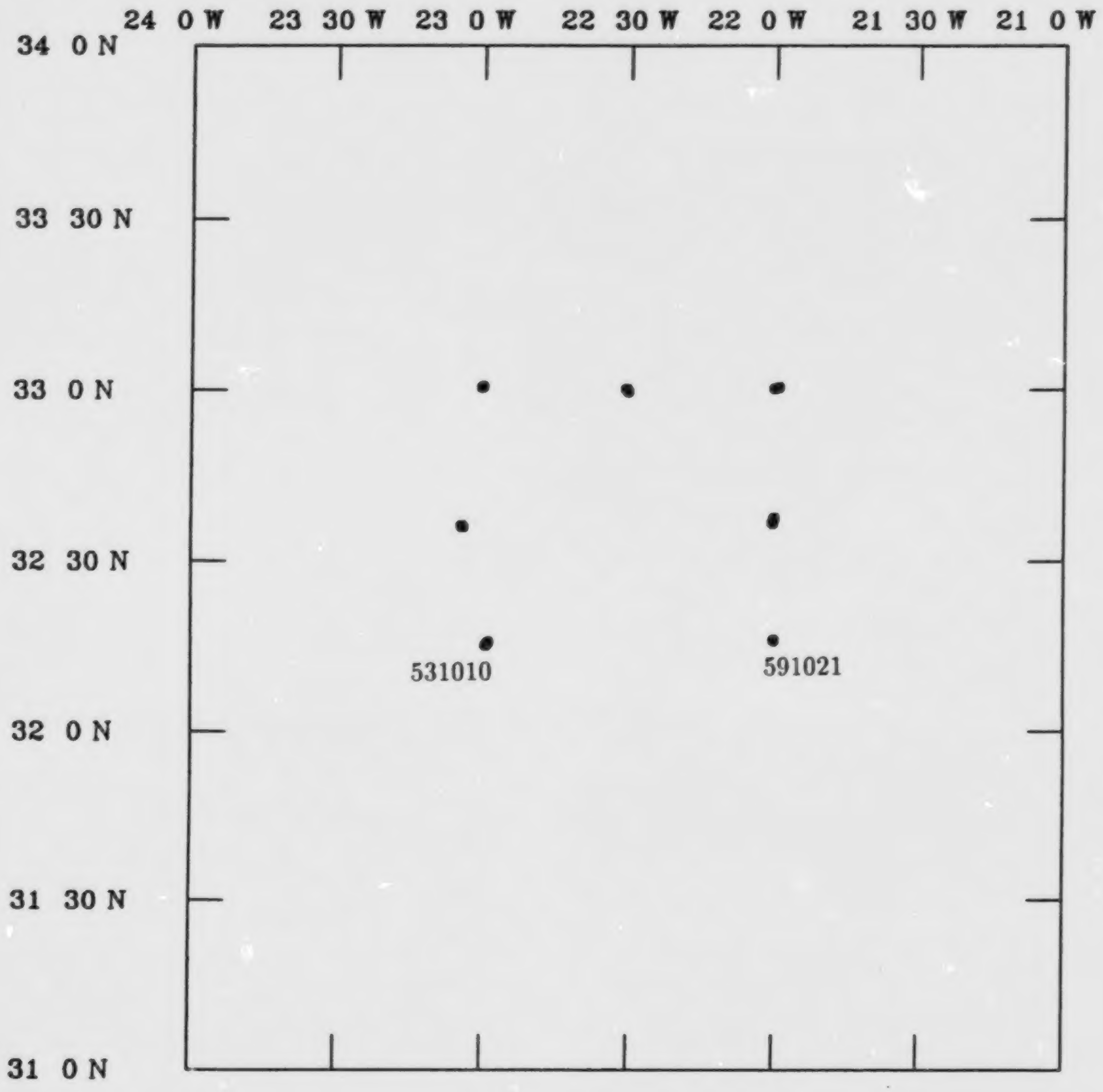


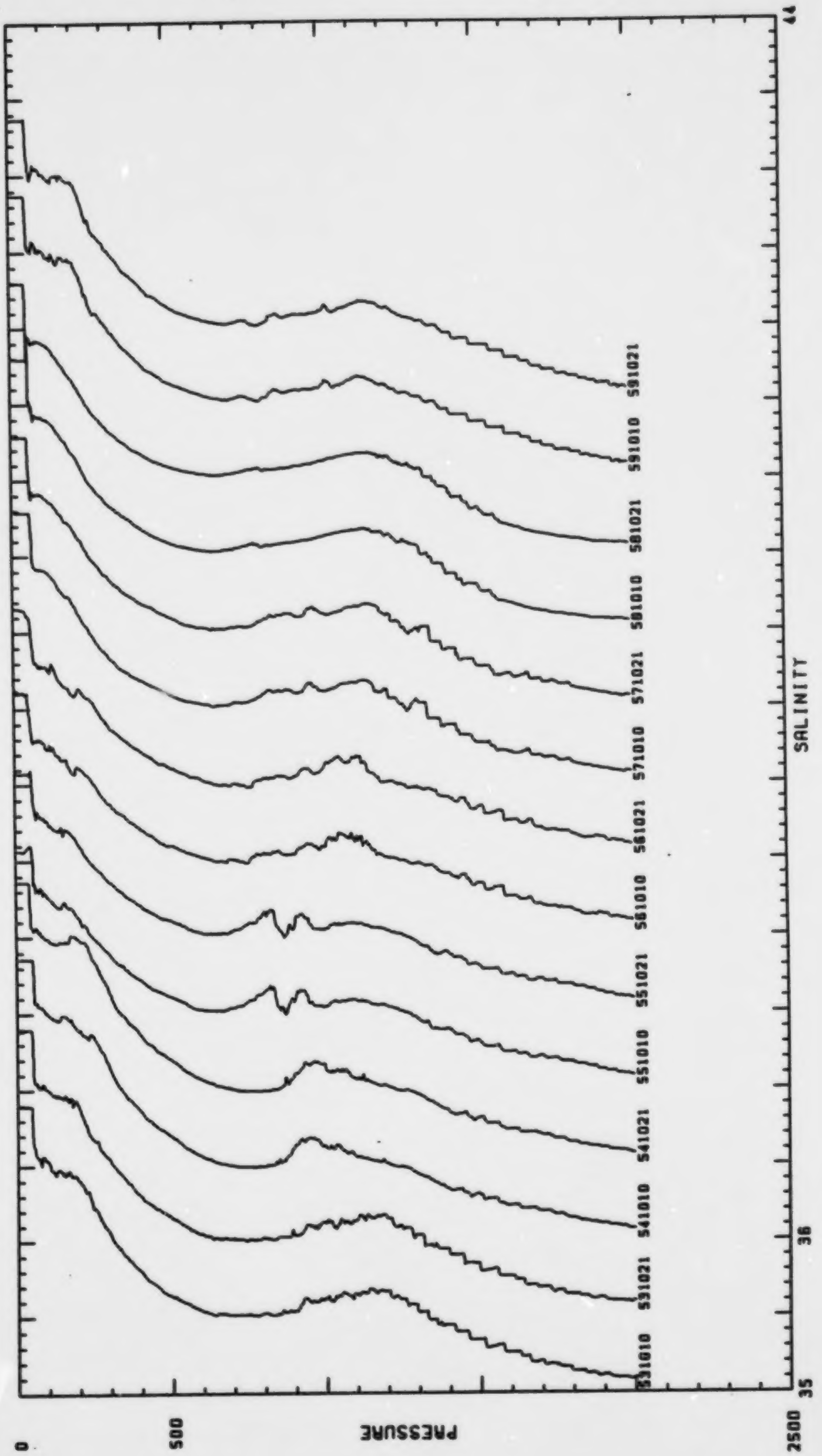
PRESSURE
0
500
2500
SALINITY
35
36
44
431010
431021
471010
471021
481010
481021
491010
491021
501010
501021
511010
511021
521010
522011

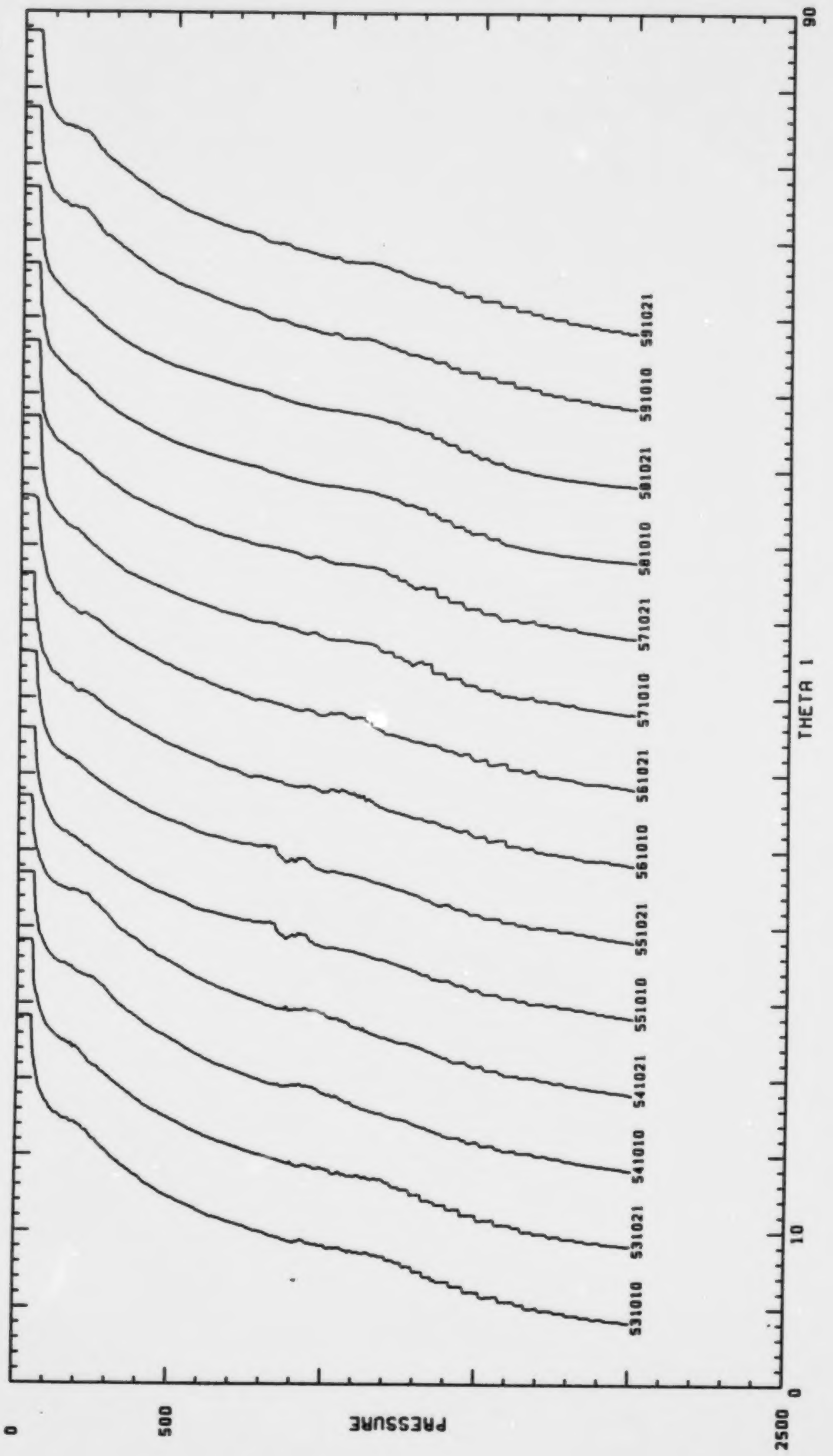

PRESSURE
0
500
2500
THETA 1
0
10
90
431010
431021
471010
471021
481010
481021
491010
491021
501010
501021
511010
511021
521010
522011

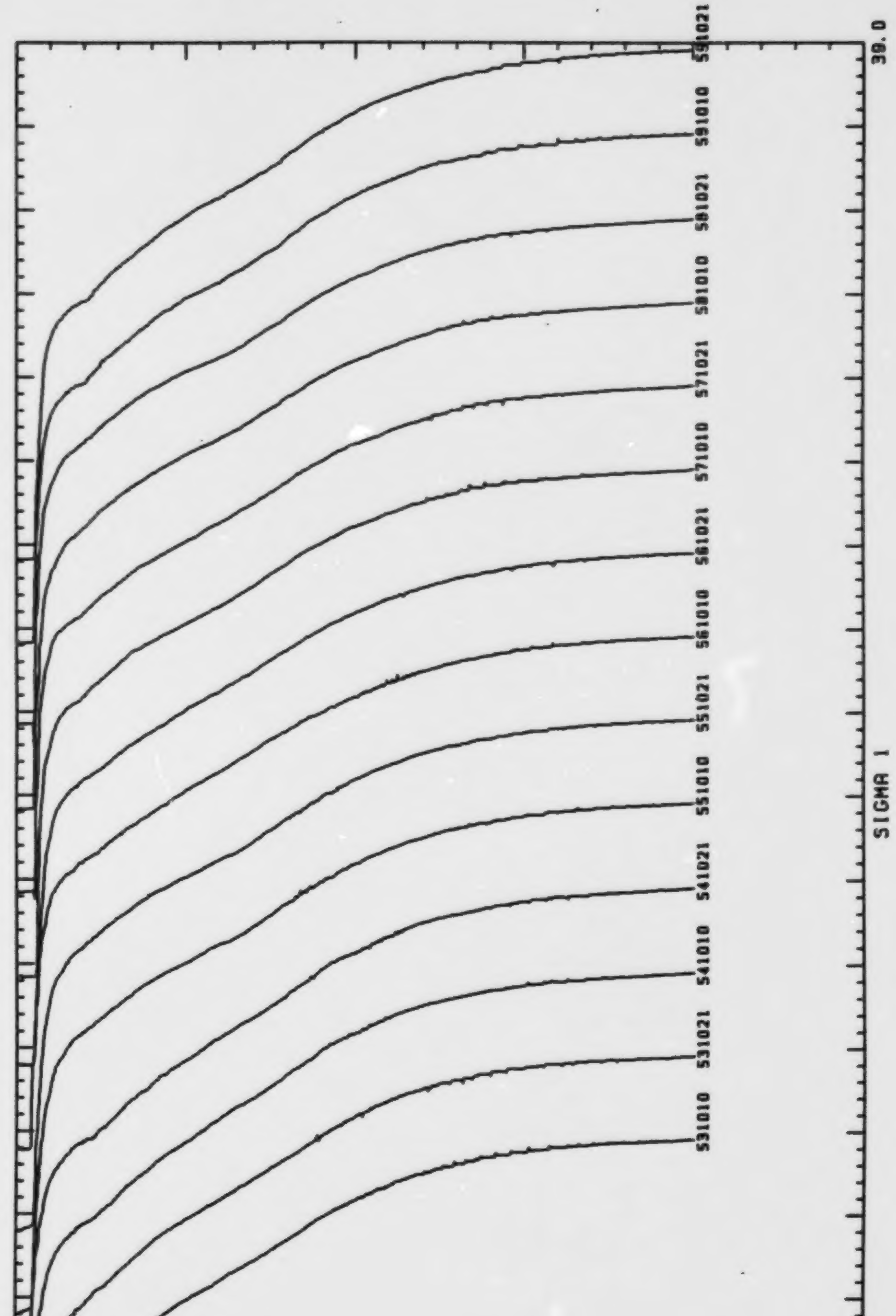

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
431010
431021
471010
471021
481010
481021
491010
491021
501010
501021
511010
511021
521010

Survey III : October 1985

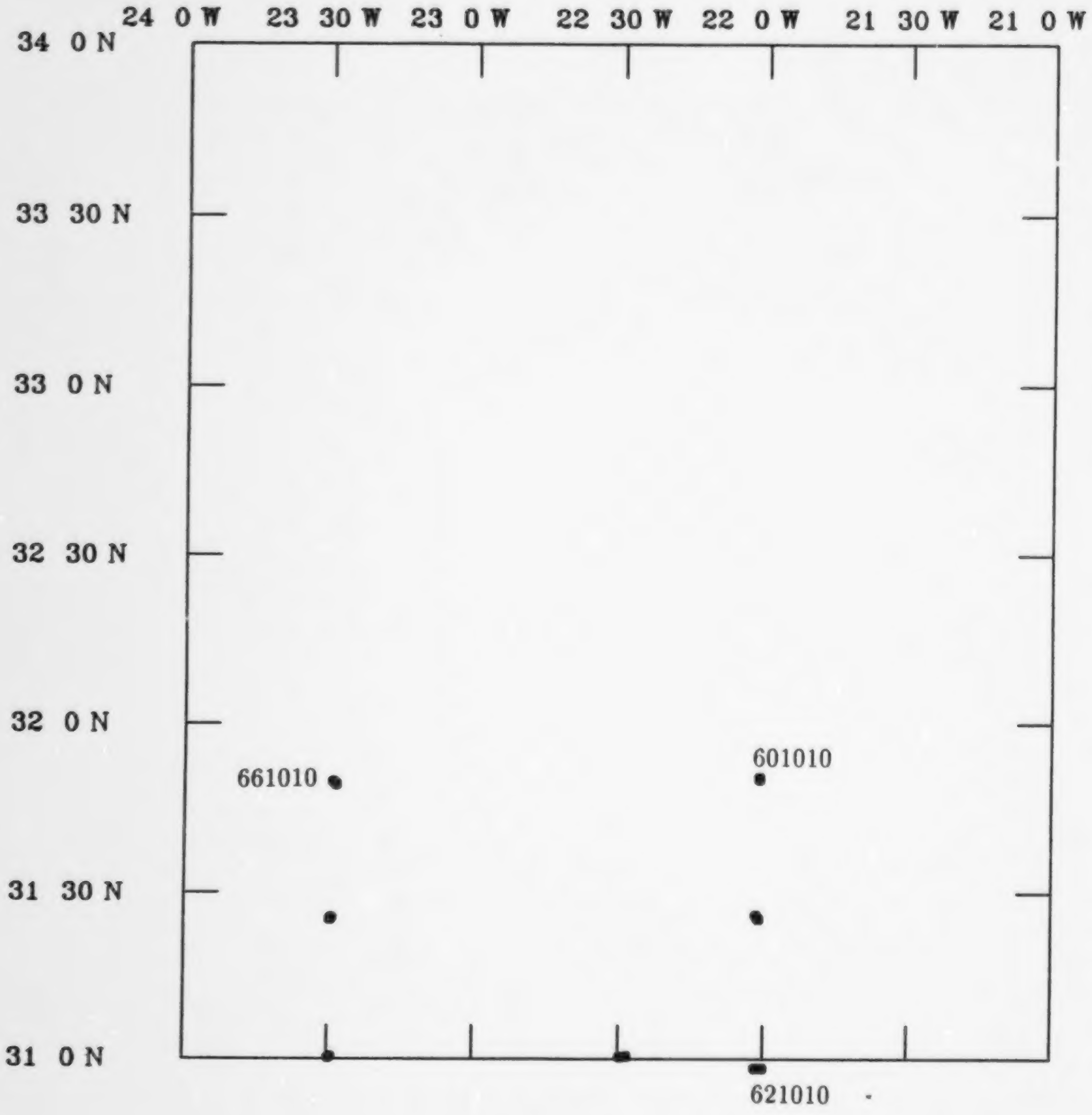


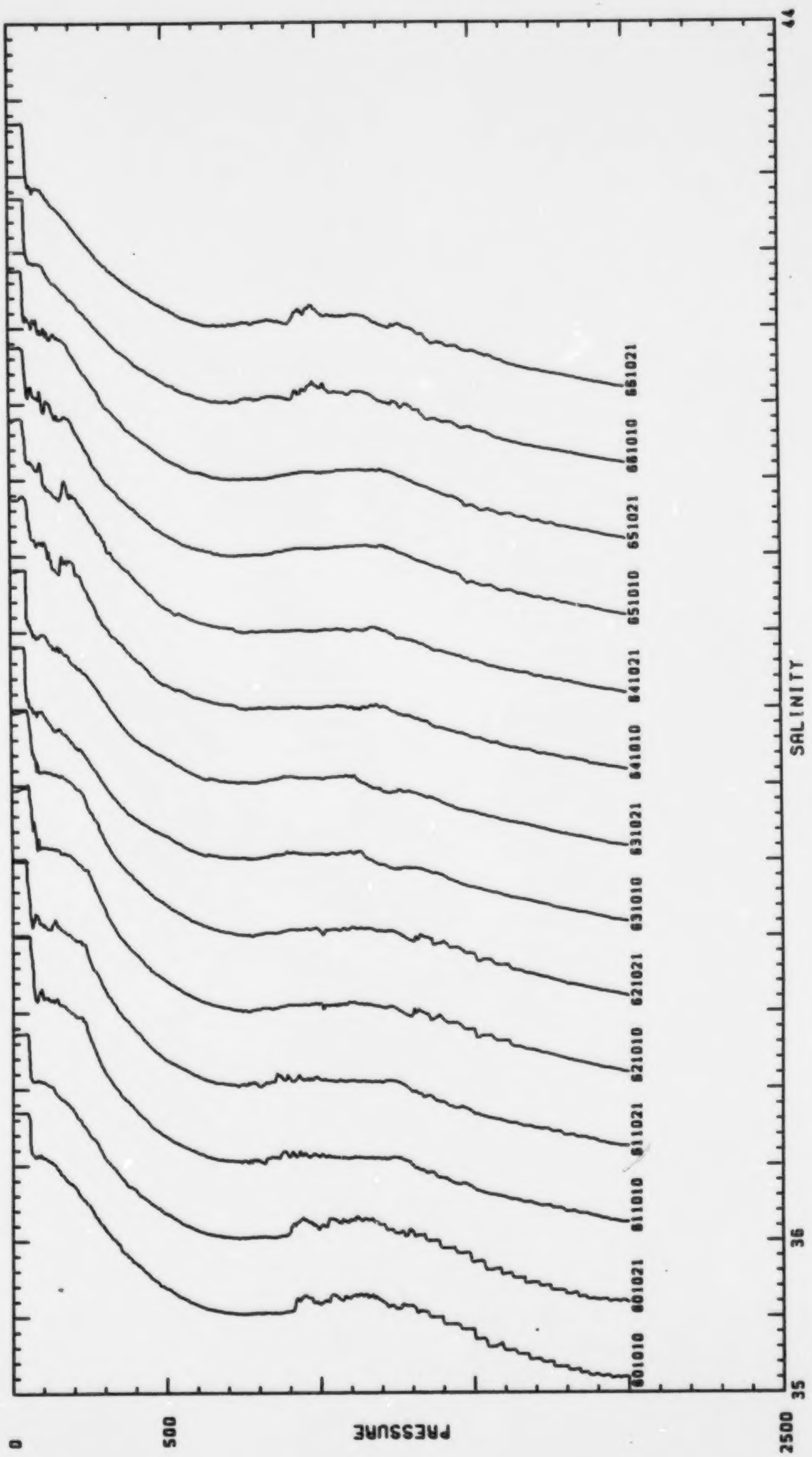

S91021
S91010
S81021
S81010
S71021
S71010
S61021
S61010
S51021
S51010
S41021
S41010
S31021
S31010
SALINITY
35
36
44
PRESSURE
0
500
2500

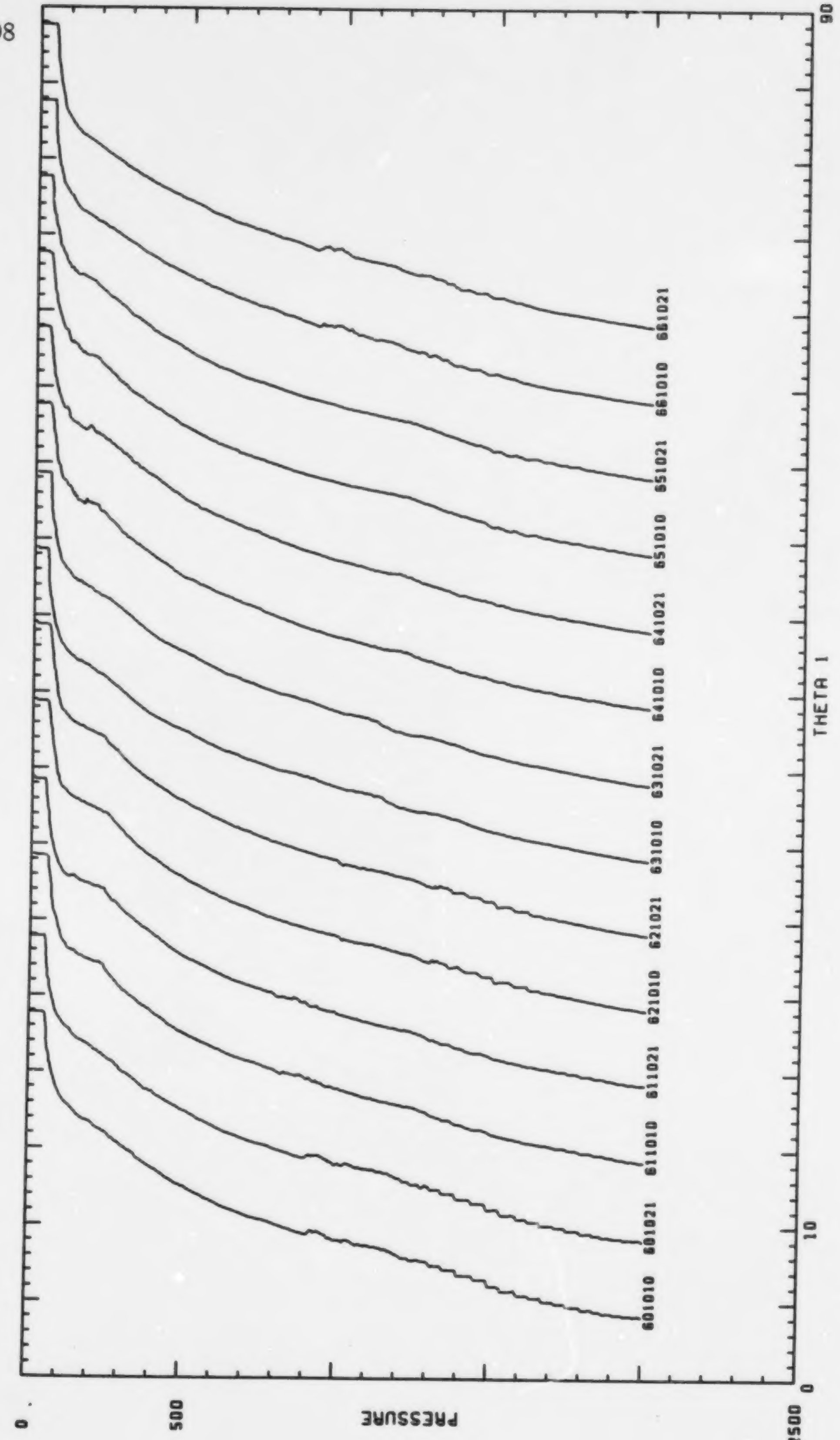

PRESSURE
0
500
2500
THETA 1
0
10
90
531010
531021
541010
541021
551010
551021
561010
561021
571010
571021
581010
581021
591010
591021

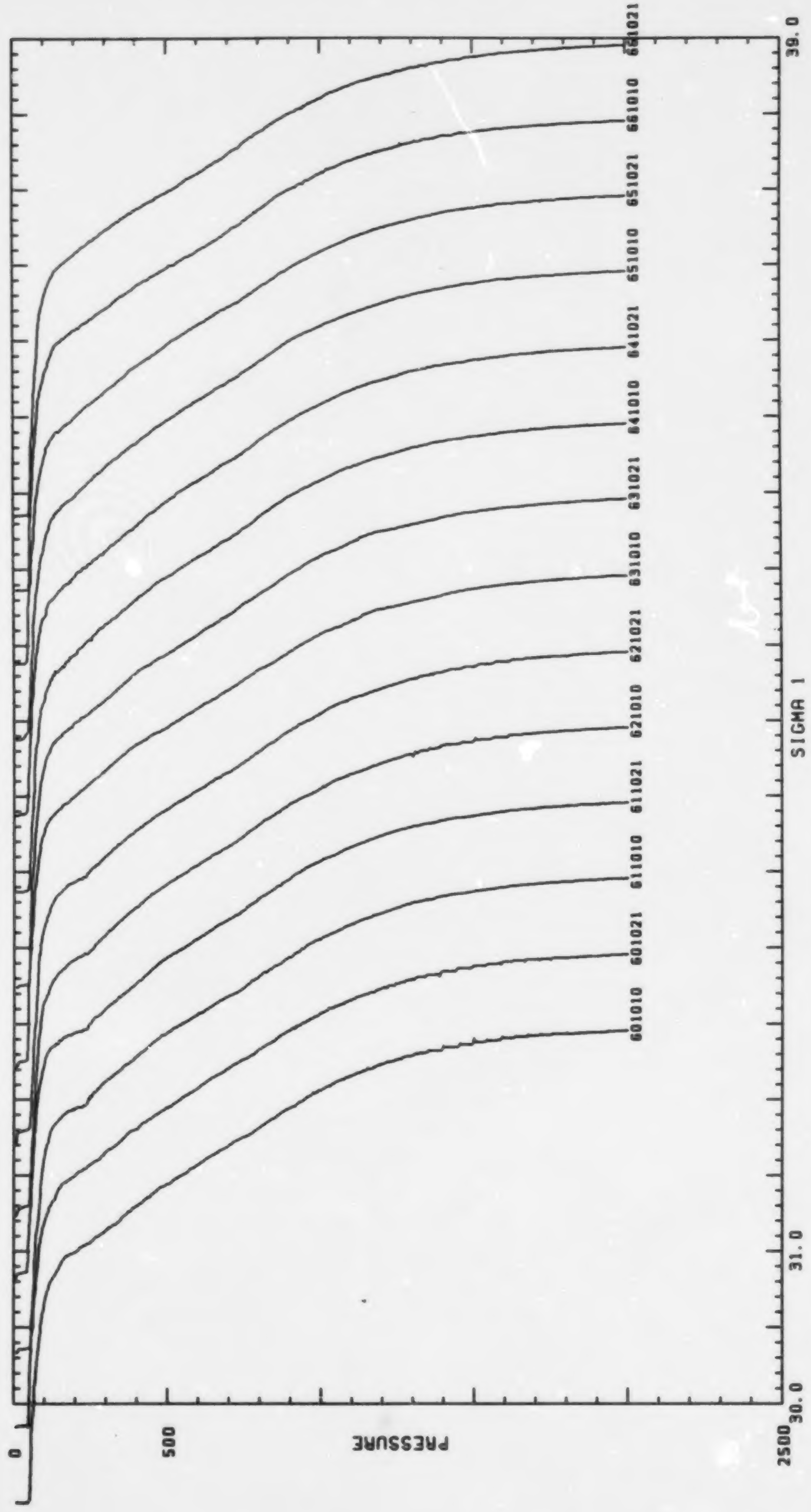

S91021
S91010
S81021
S81010
S71021
S71010
S61021
S61010
S51021
S51010
S41021
S41010
S31021
S31010
SIGMA 1
30.0
31.0
39.0
PRESSURE
0
500
2500

Survey III : October 1985

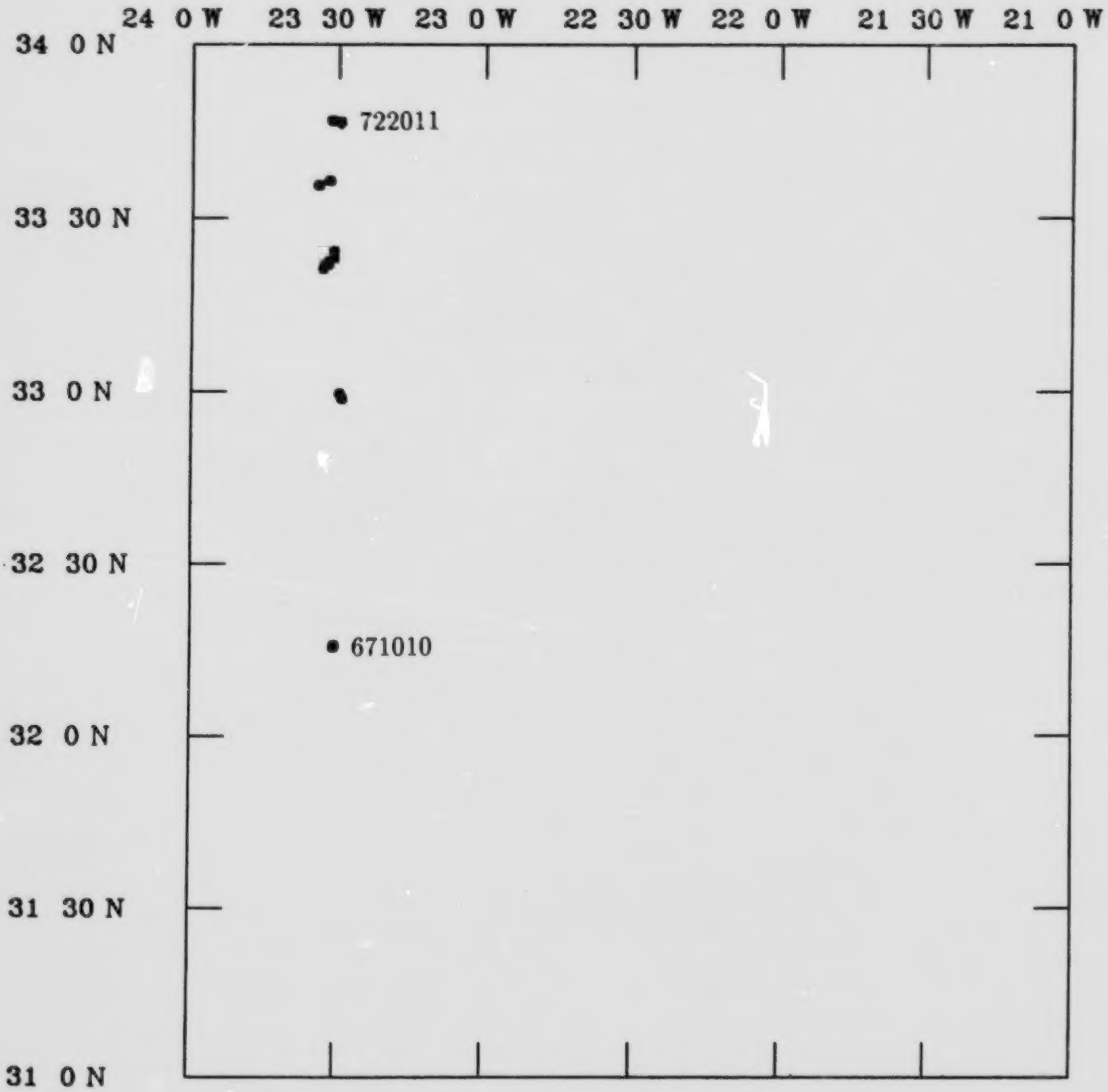


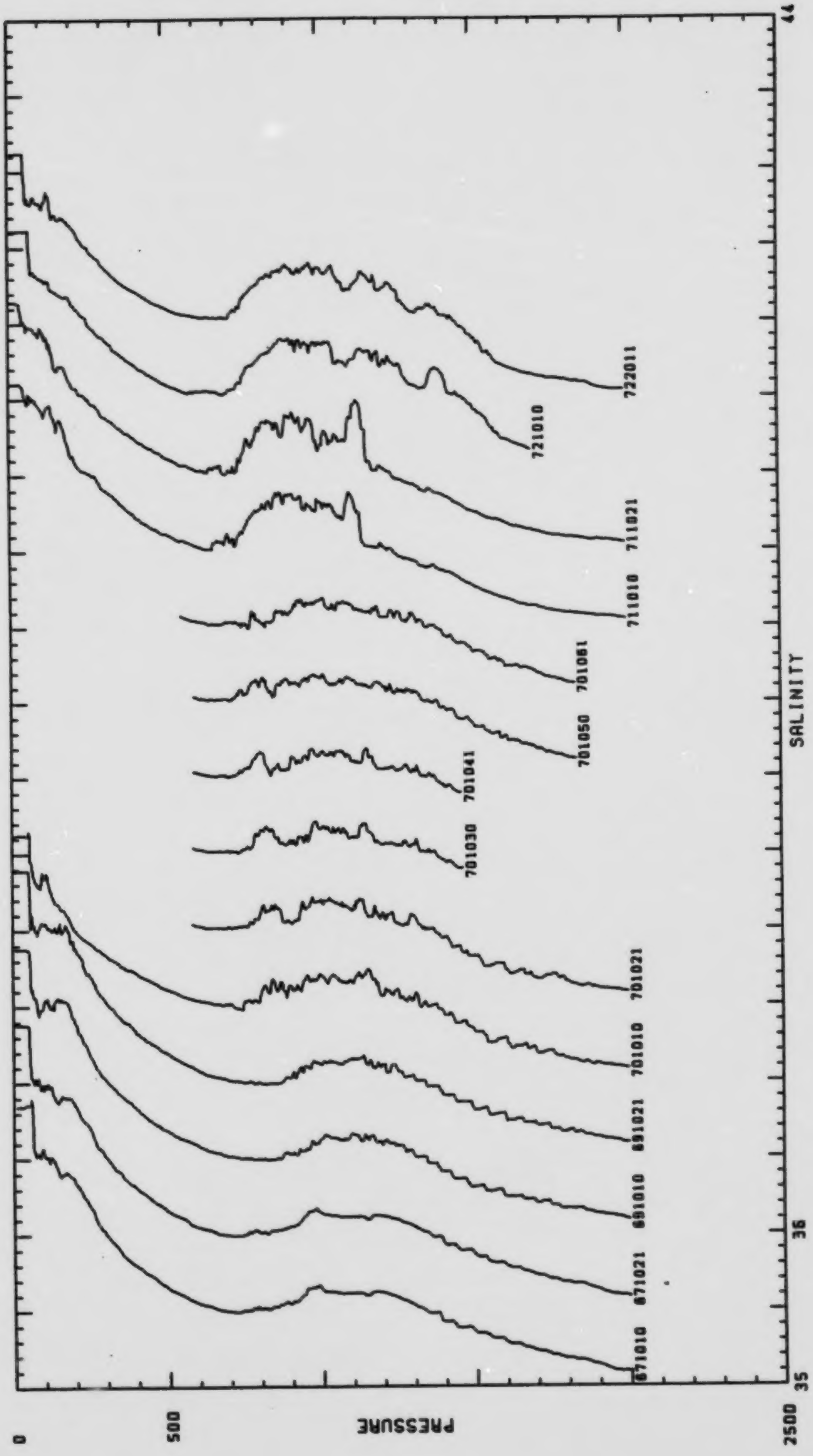

PRESSURE
0
500
2500
SALINITY
35
36
44
601010
601021
611010
611021
621010
621021
631010
631021
641010
641021
651010
651021
661010
661021

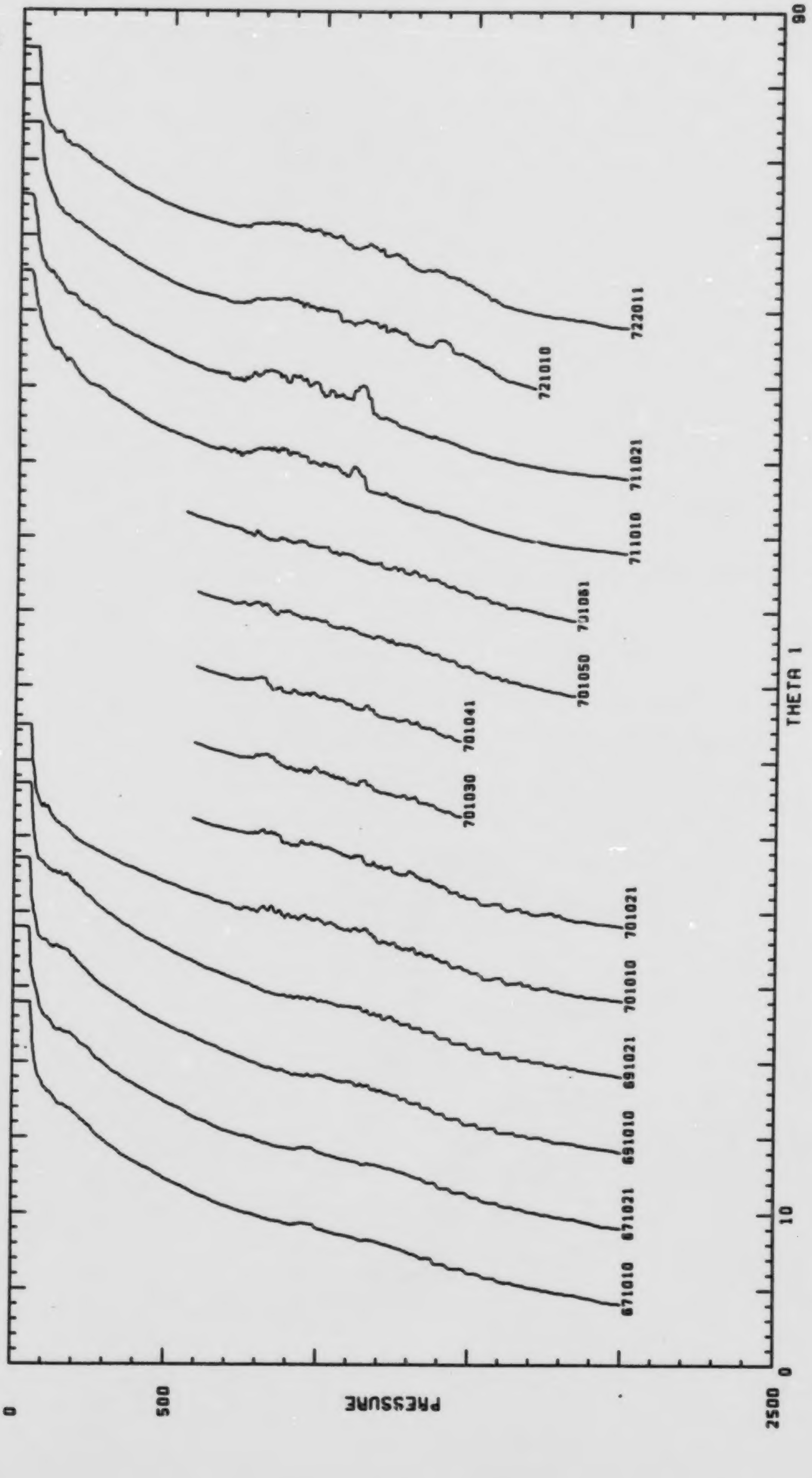

PRESSURE
0
500
2500
THETA 1
0
10
90
601010
601021
611010
611021
621010
621021
631010
631021
641010
641021
651010
651021
661010
661021

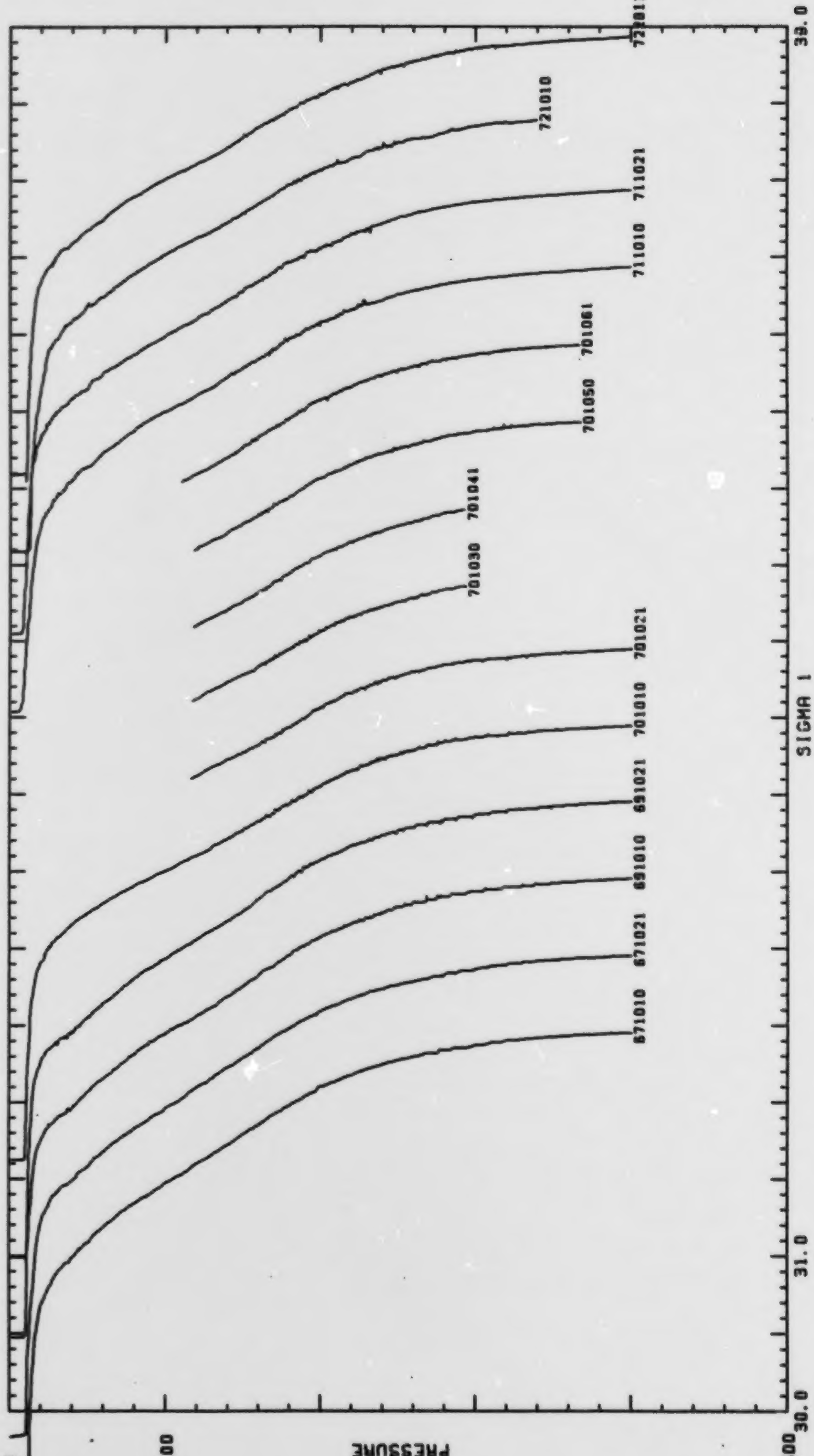

661021
661010
651021
651010
641021
641010
631021
631010
621021
621010
611021
611010
601021
601010
SIGMA 1
39.0
31.0
30.0
PRESSURE
0
500
2500

Survey III : October 1985



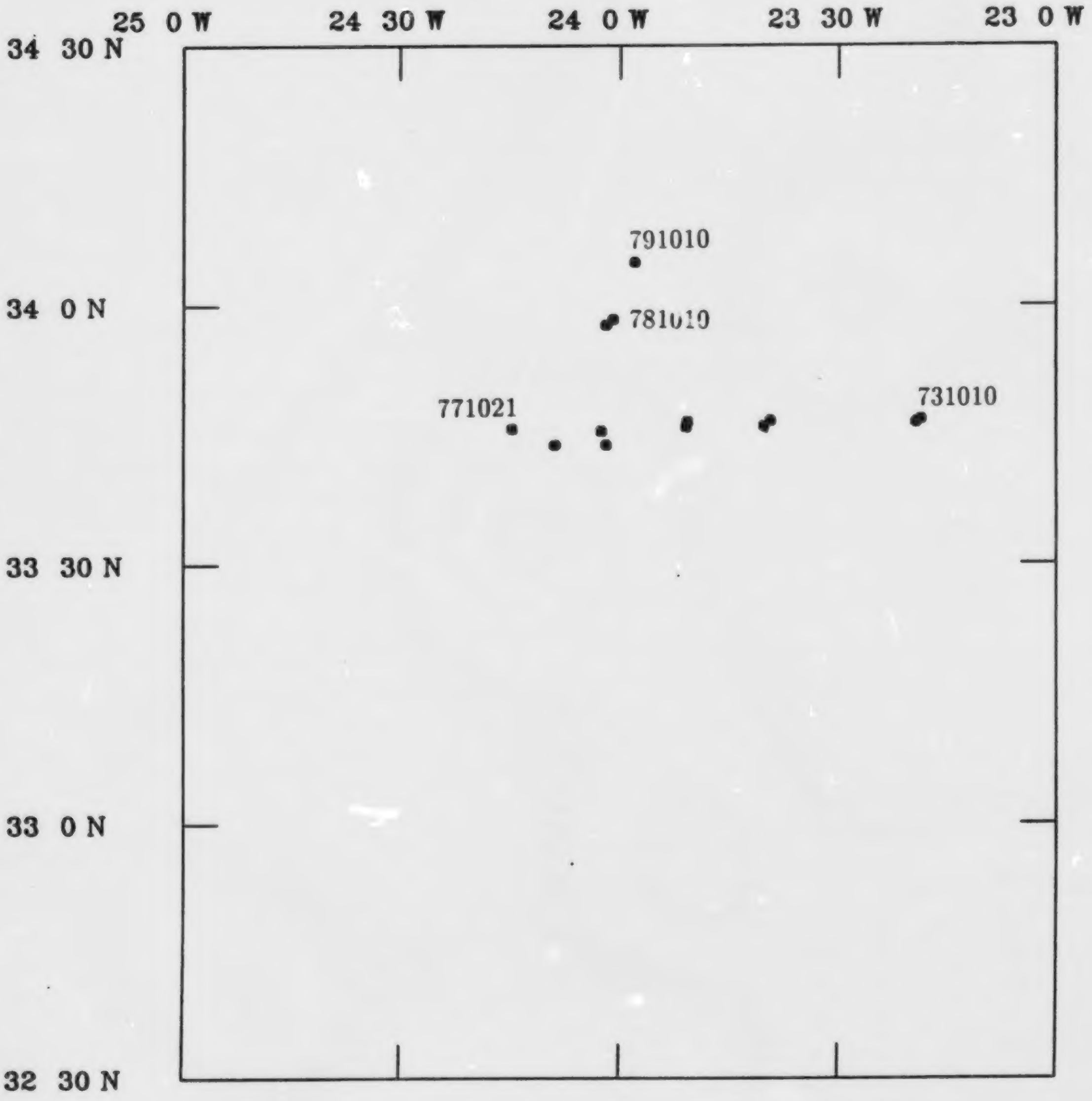

PRESSURE
0
500
2500
SALINITY
35
36
44
722011
721010
711021
711010
701061
701050
701041
701030
701021
701010
691021
691010
671021
671010

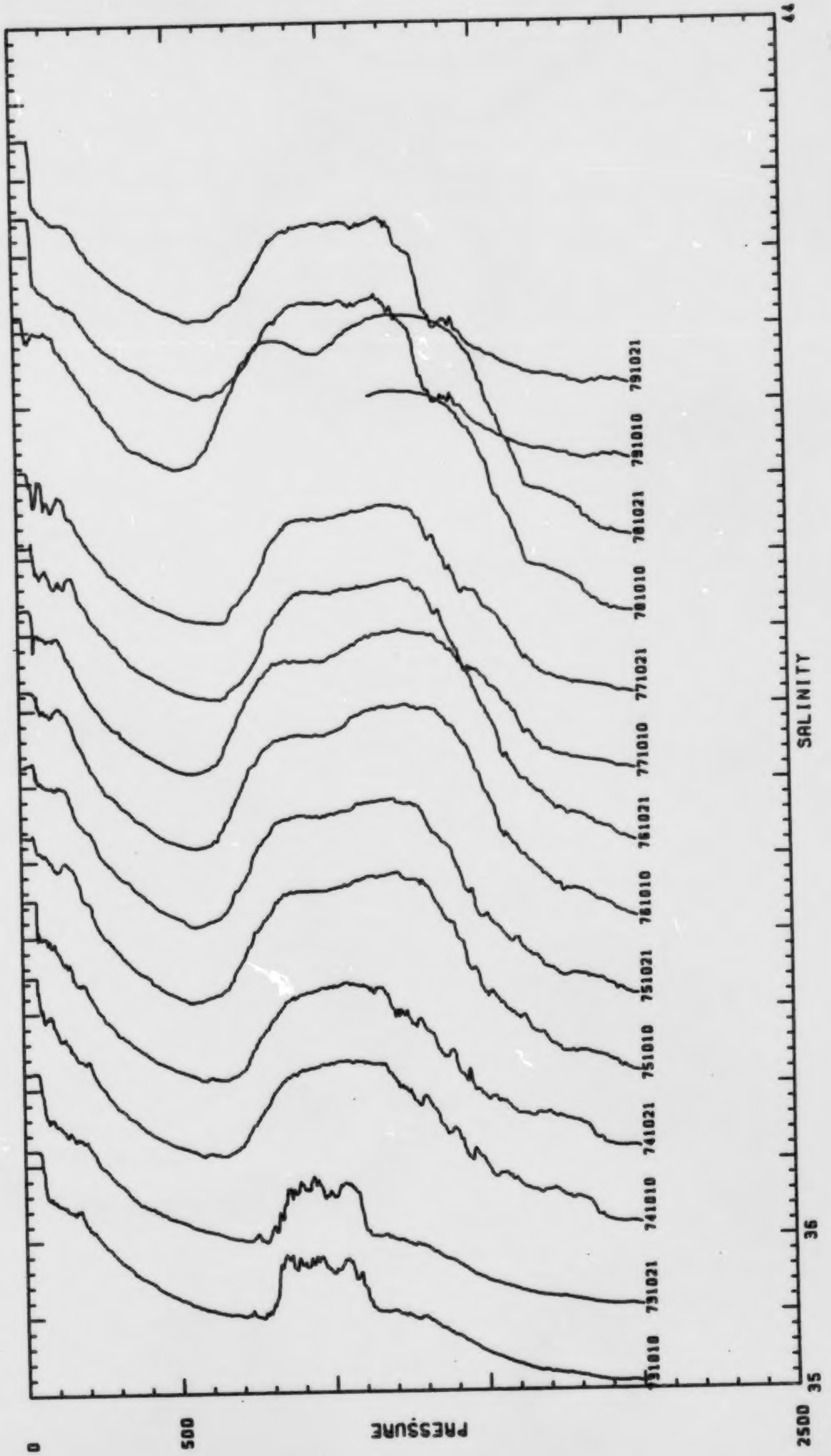

PRESSURE
0
500
2500
THETA 1
0
10
90
722011
721010
711021
711010
701050
701041
701030
701021
701010
691021
691010
671021
671010



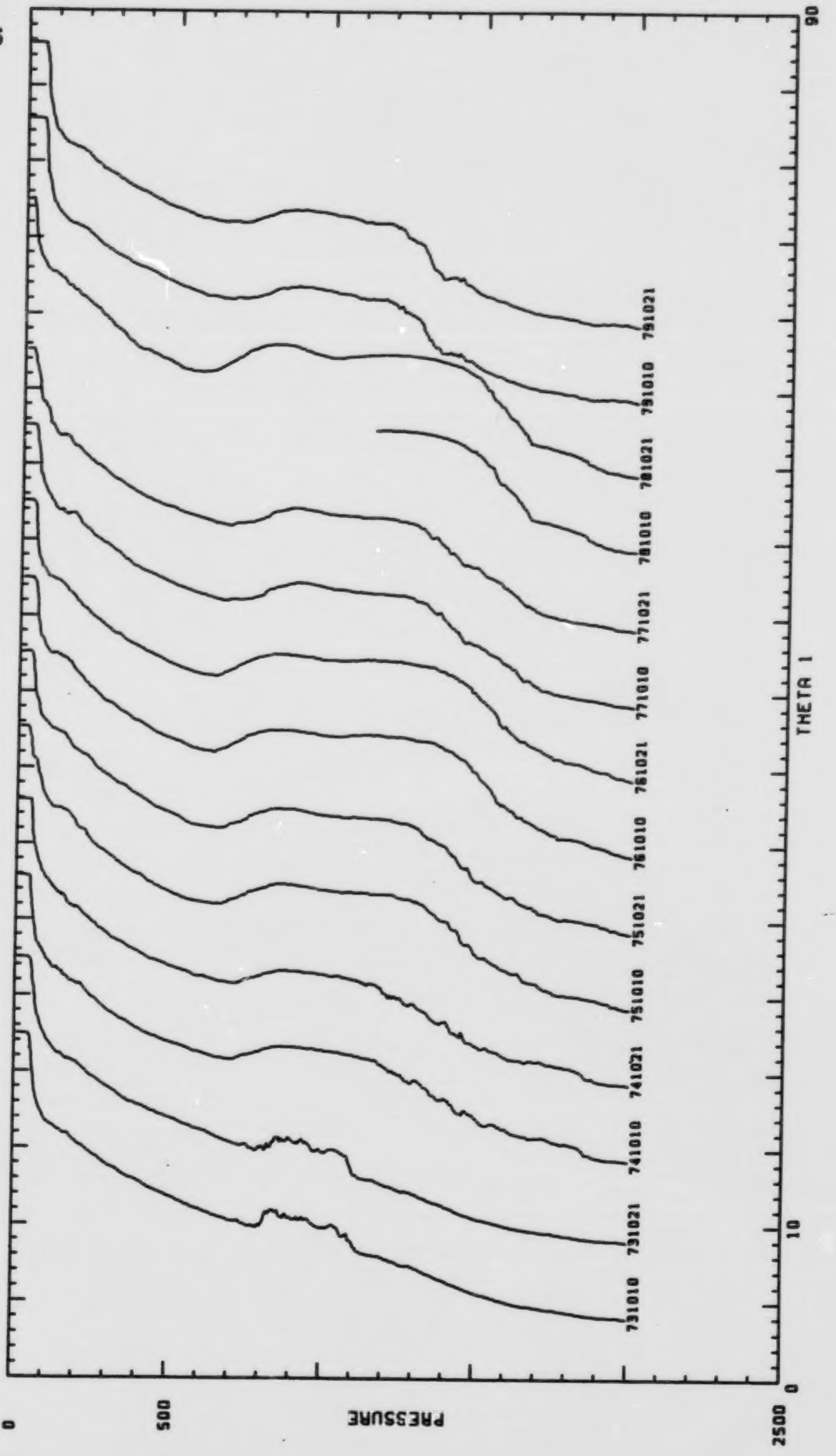
721010
711021
711010
701061
701050
701041
701030
701021
701010
691021
691010
671021
671010
SIGMA 1
PRESSURE
0
500
2500
30.0
31.0

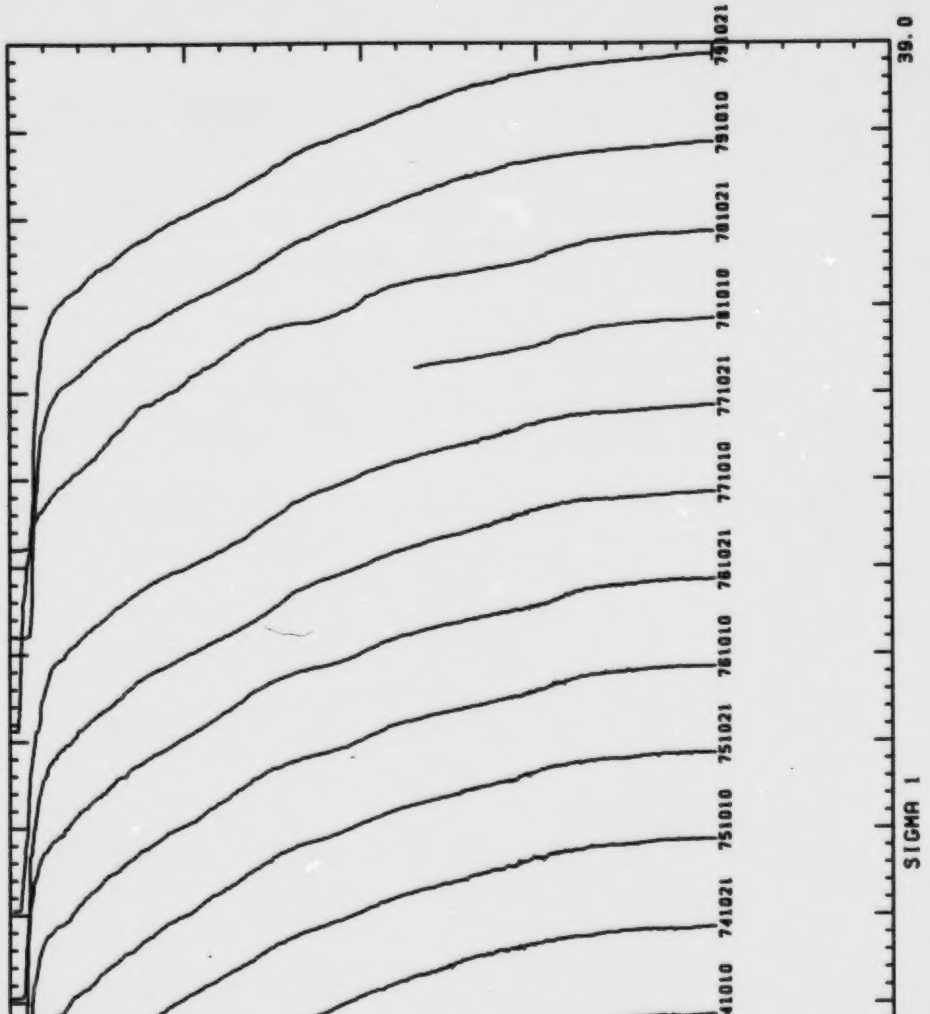
Survey III : October 1985





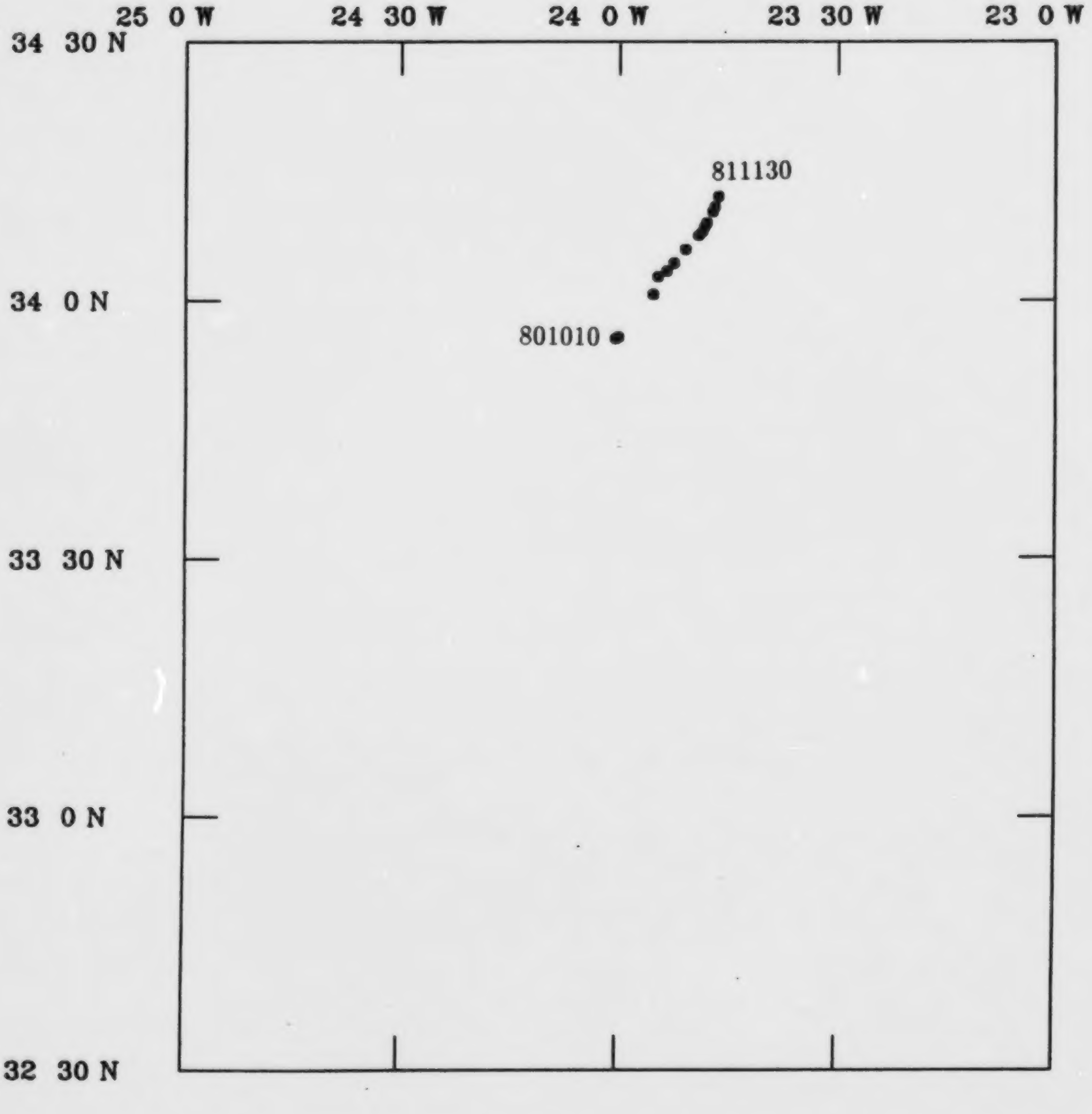
PRESSURE
0
500
2500
SALINITY
35
36
44
731010
731021
741010
741021
751010
751021
761010
761021
771010
771021
781010
781021
791010
791021

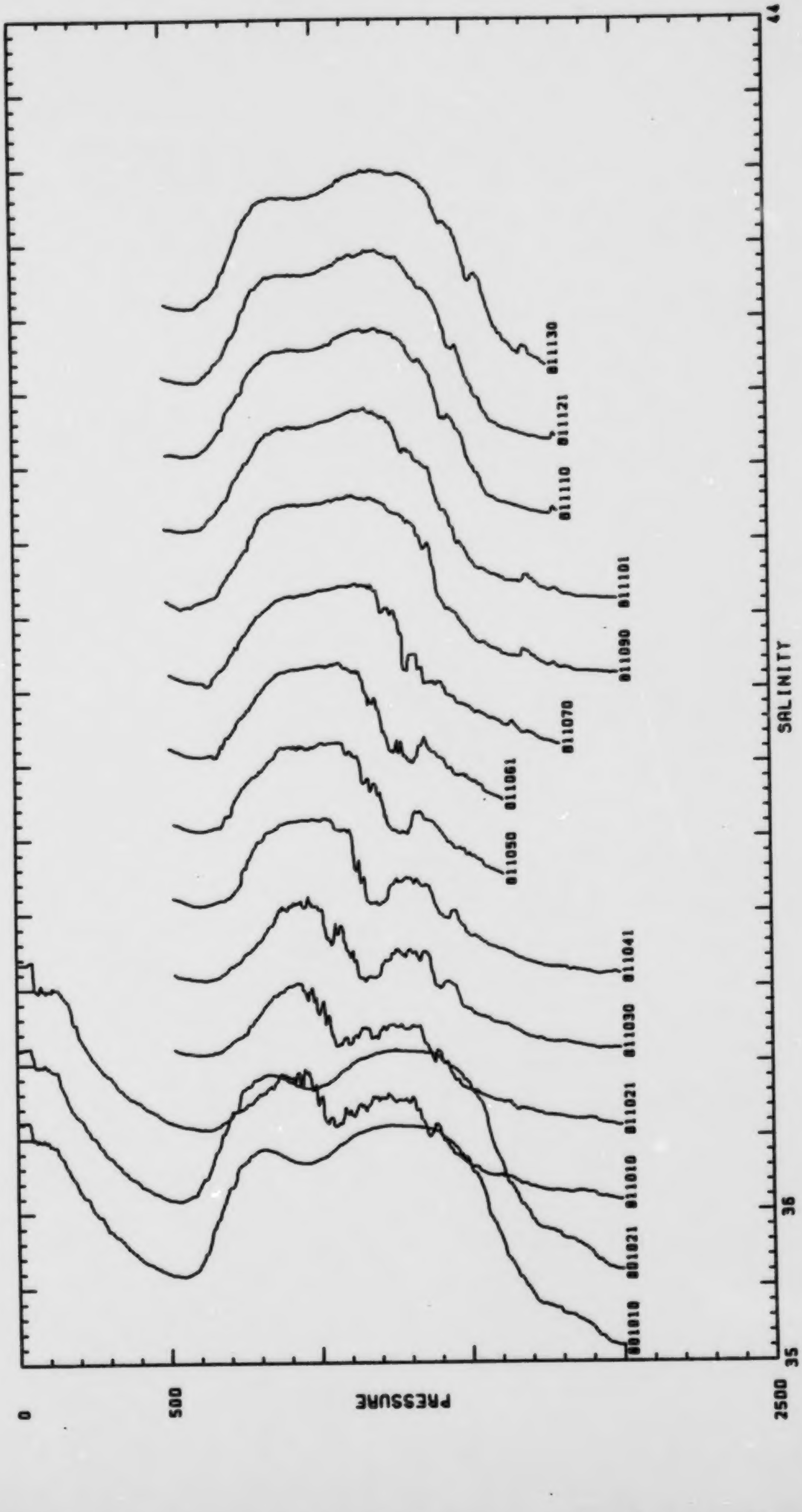

791021
791010
781021
781010
771021
771010
761021
761010
751021
751010
741021
741010
731021
731010
THETA 1
0
10
90
PRESSURE
0
500
2500

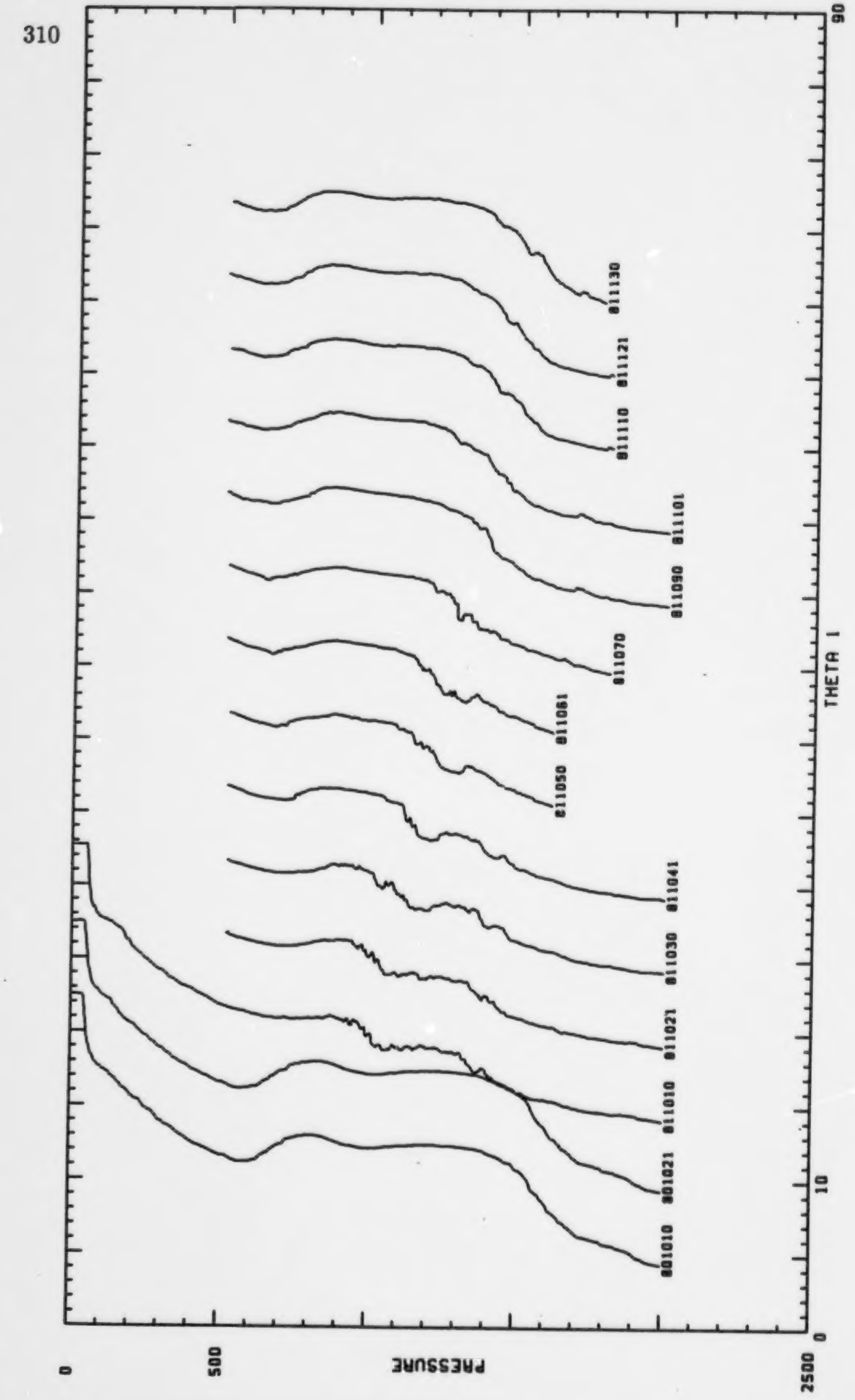


PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
791021
791010
781021
781010
771021
771010
761021
761010
751021
751010
741021
741010
731021
731010

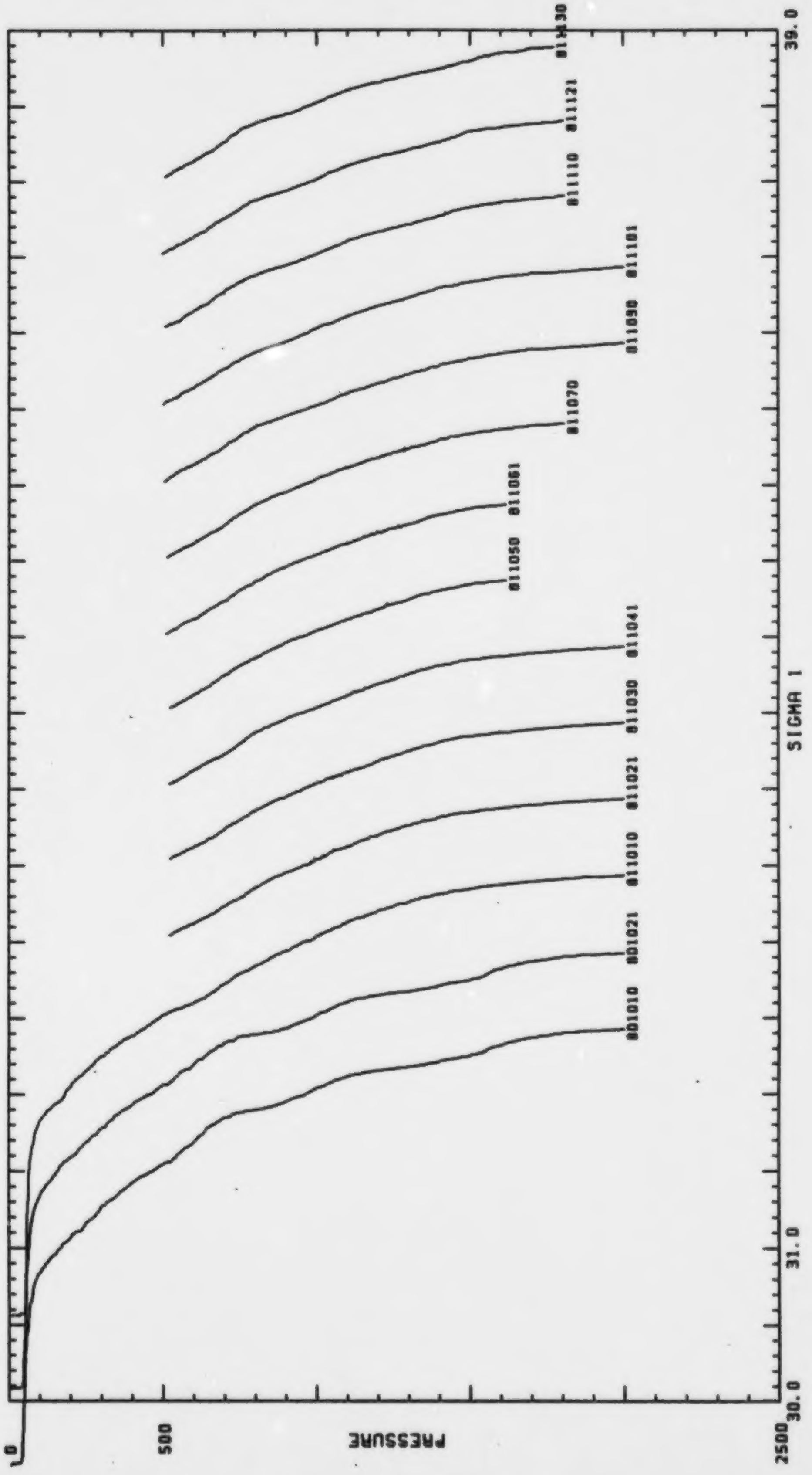
Survey III : October 1985



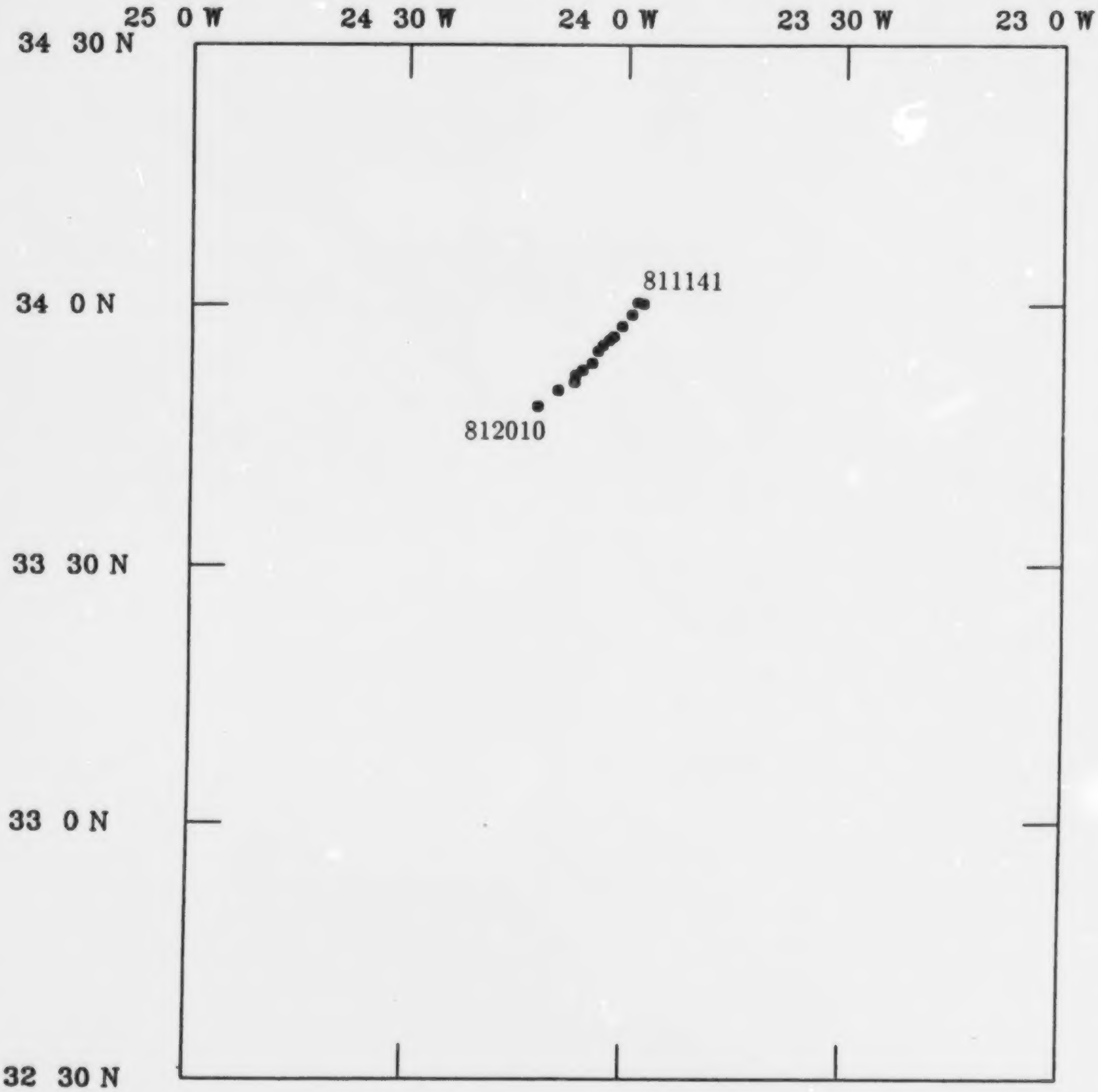

PRESSURE
0
500
2500
SALINITY
35
36
44
011130
011121
011110
011101
011090
011070
011061
011050
011041
011030
011021
011010
001021
001010

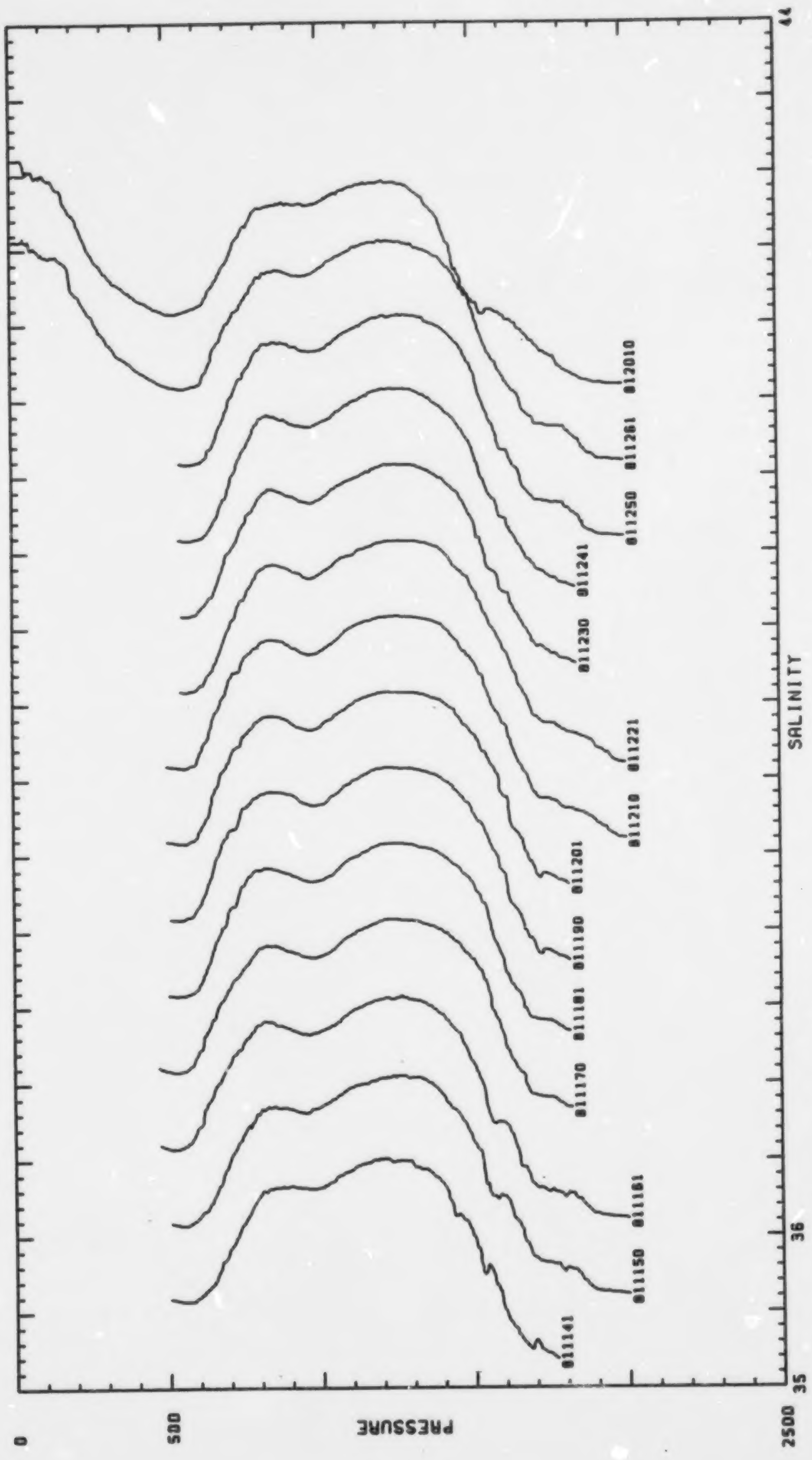


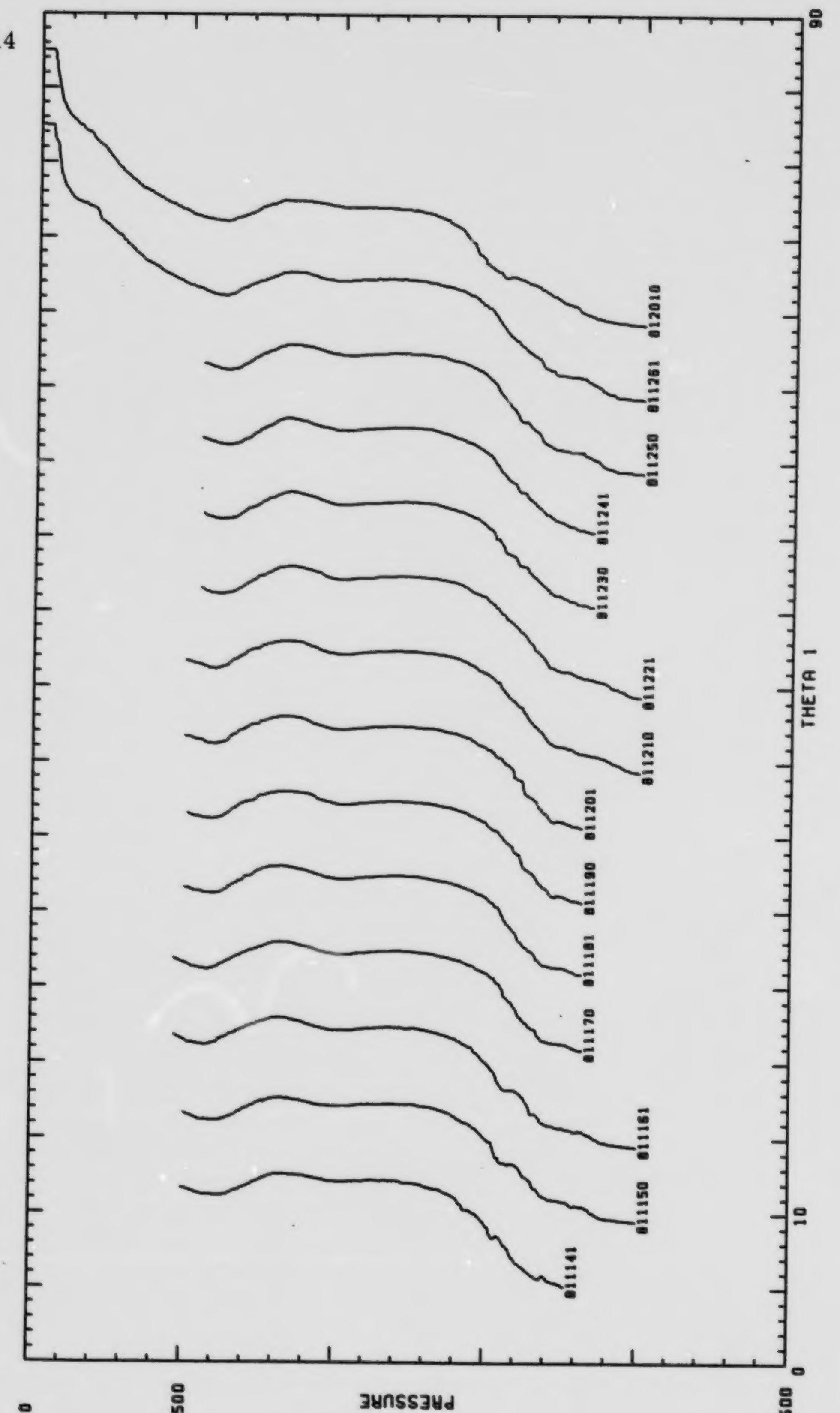
PRESSURE
0
500
2500
THETA I
0
10
90
801010
801021
811010
811021
811030
811041
811050
811061
811070
811090
811101
811110
811121
811130

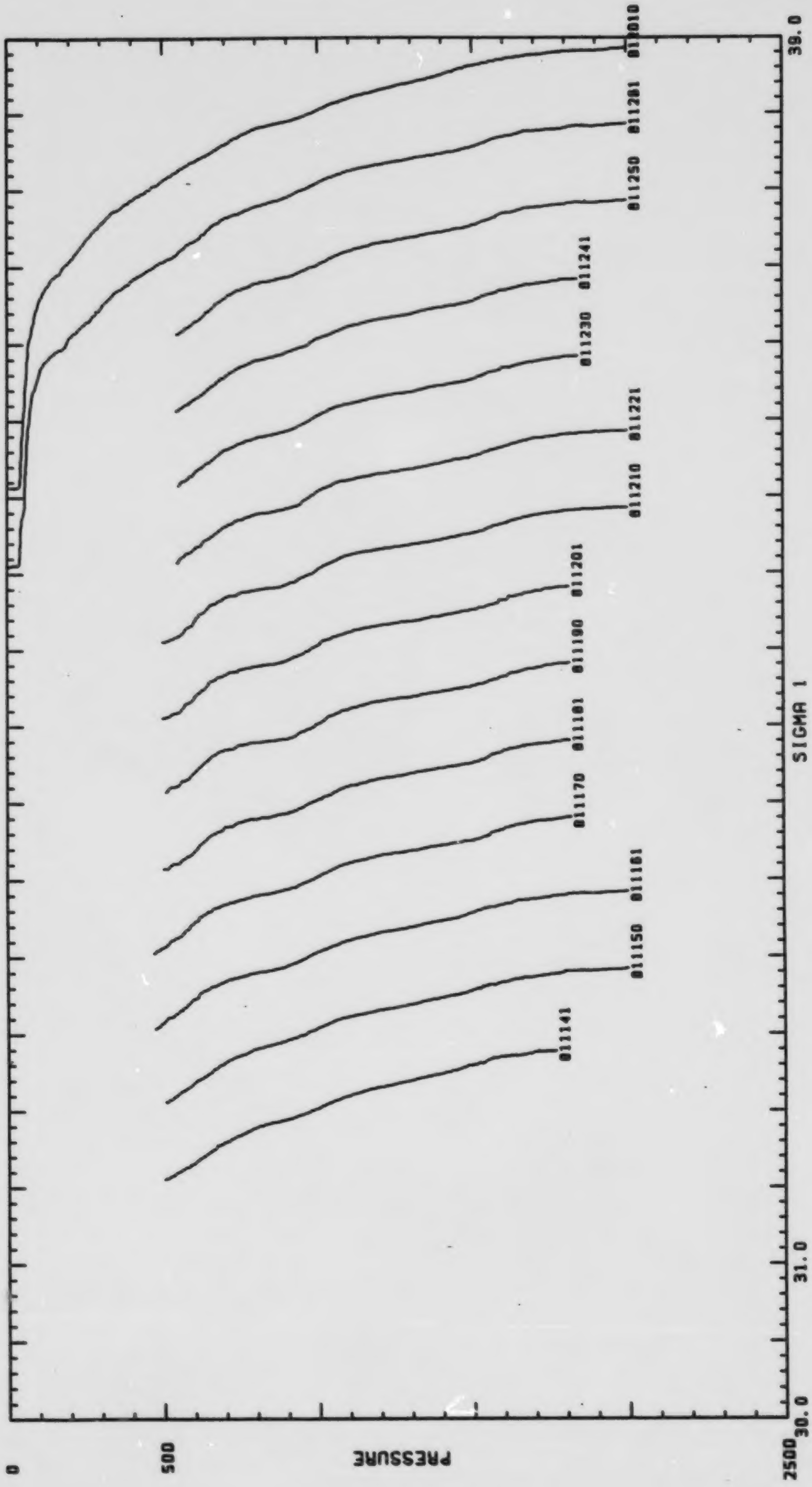

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
801010
801021
811010
811021
811030
811041
811050
811061
811070
811090
811101
811110
811121
811130

Survey III : October 1985

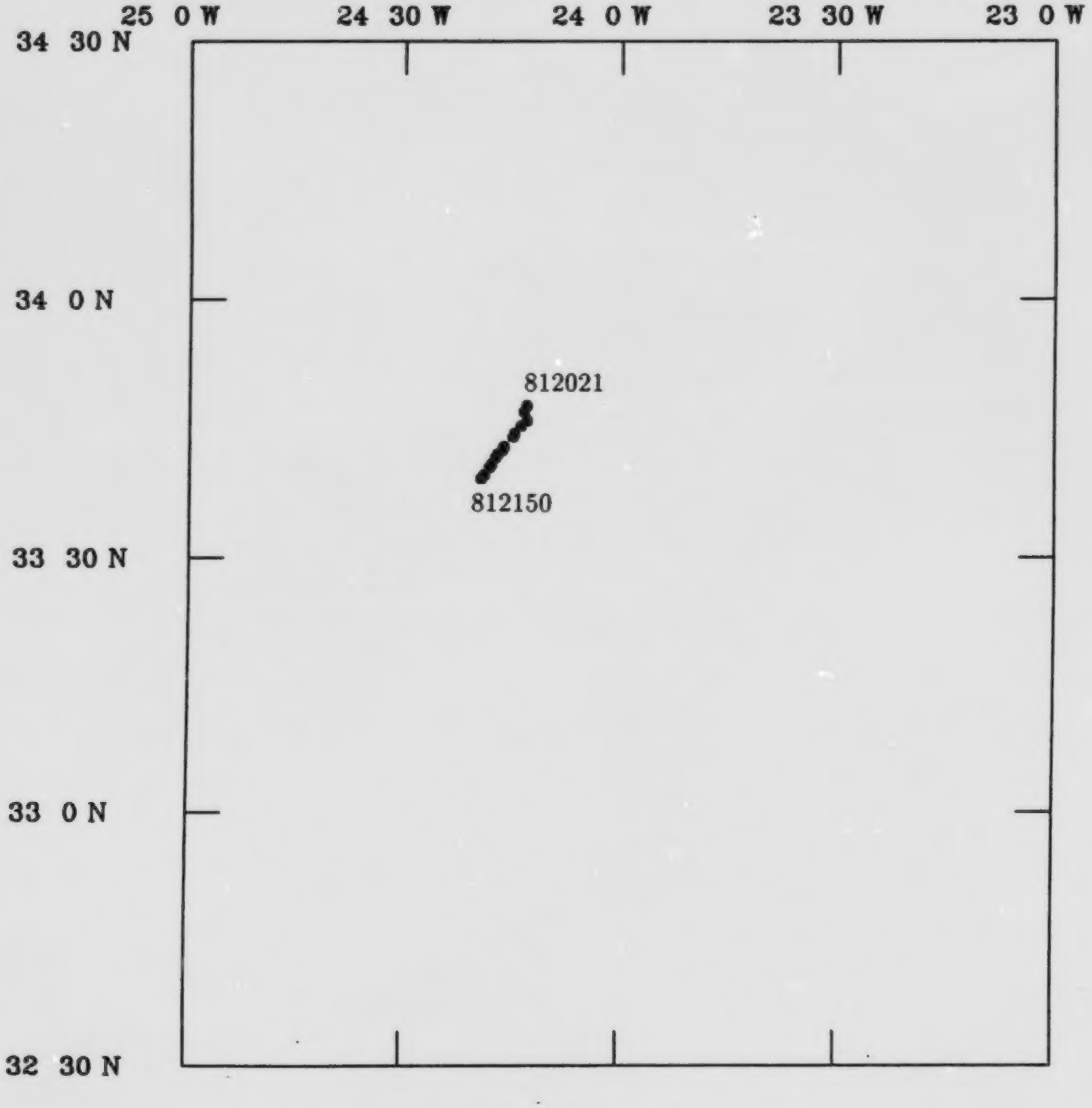


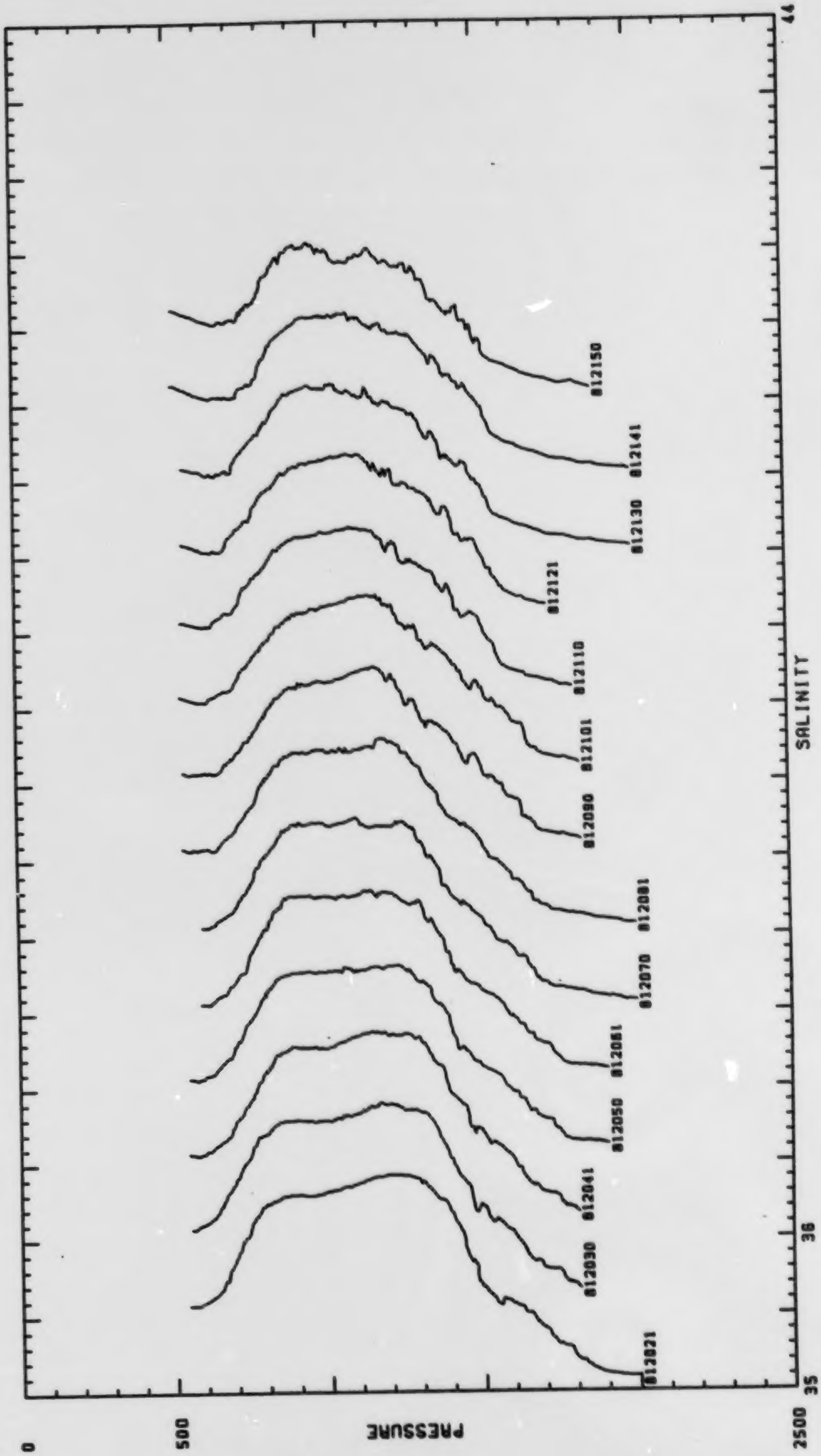

PRESSURE
0
500
2500
SALINITY
35
36
011141
011150
011161
011170
011181
011190
011201
011210
011221
011230
011241
011250
011261
012010


PRESSURE
0
500
2500
THETA 1
0
10
90
011141
011150
011161
011170
011181
011190
011201
011210
011221
011230
011241
011250
011261
012010

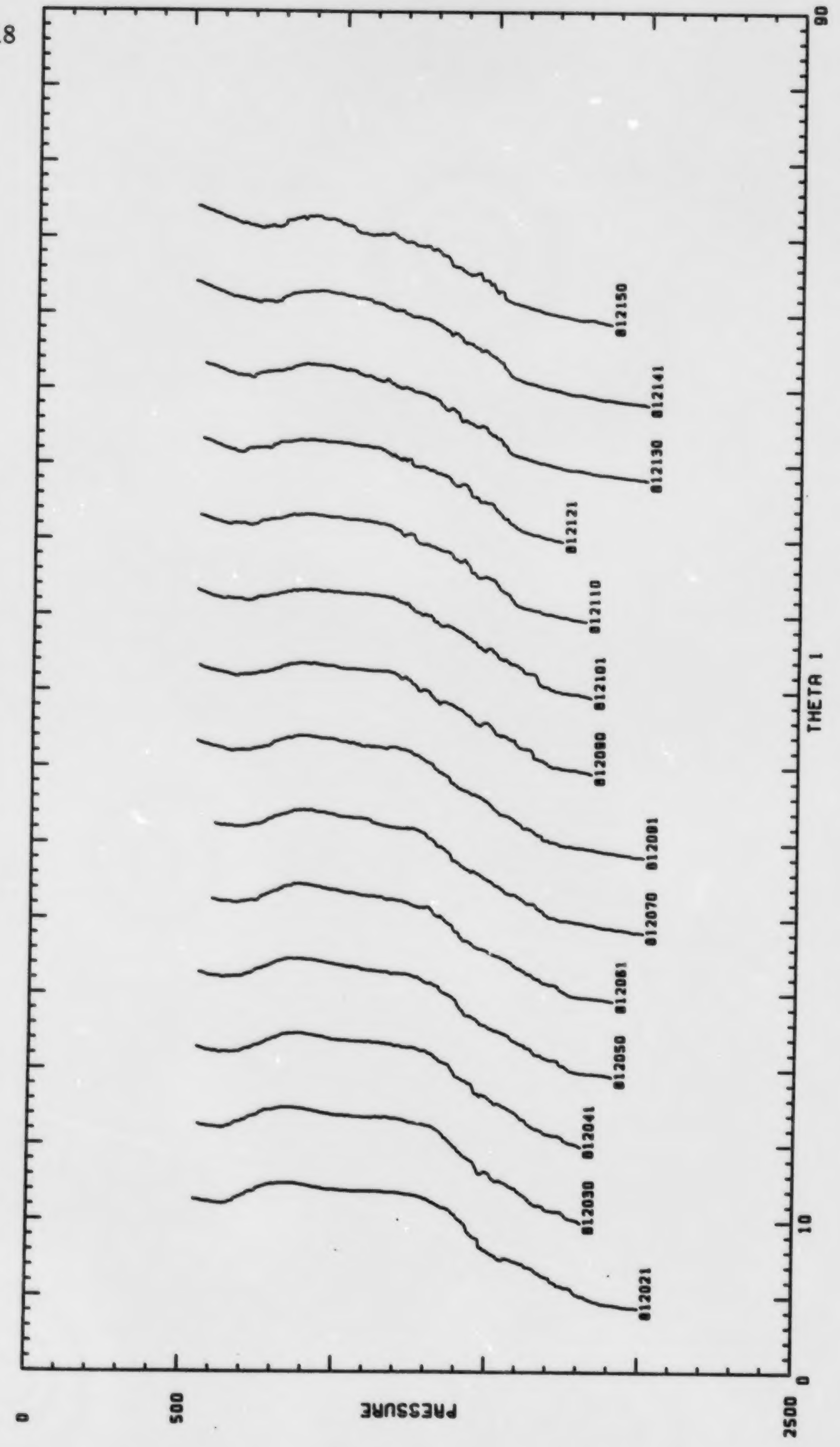

011010
011281
011250
011241
011230
011221
011210
011201
011190
011181
011170
011161
011150
011141
SIGMA 1
PRESSURE
0
500
2500
30.0
31.0
39.0

Survey III : October 1985

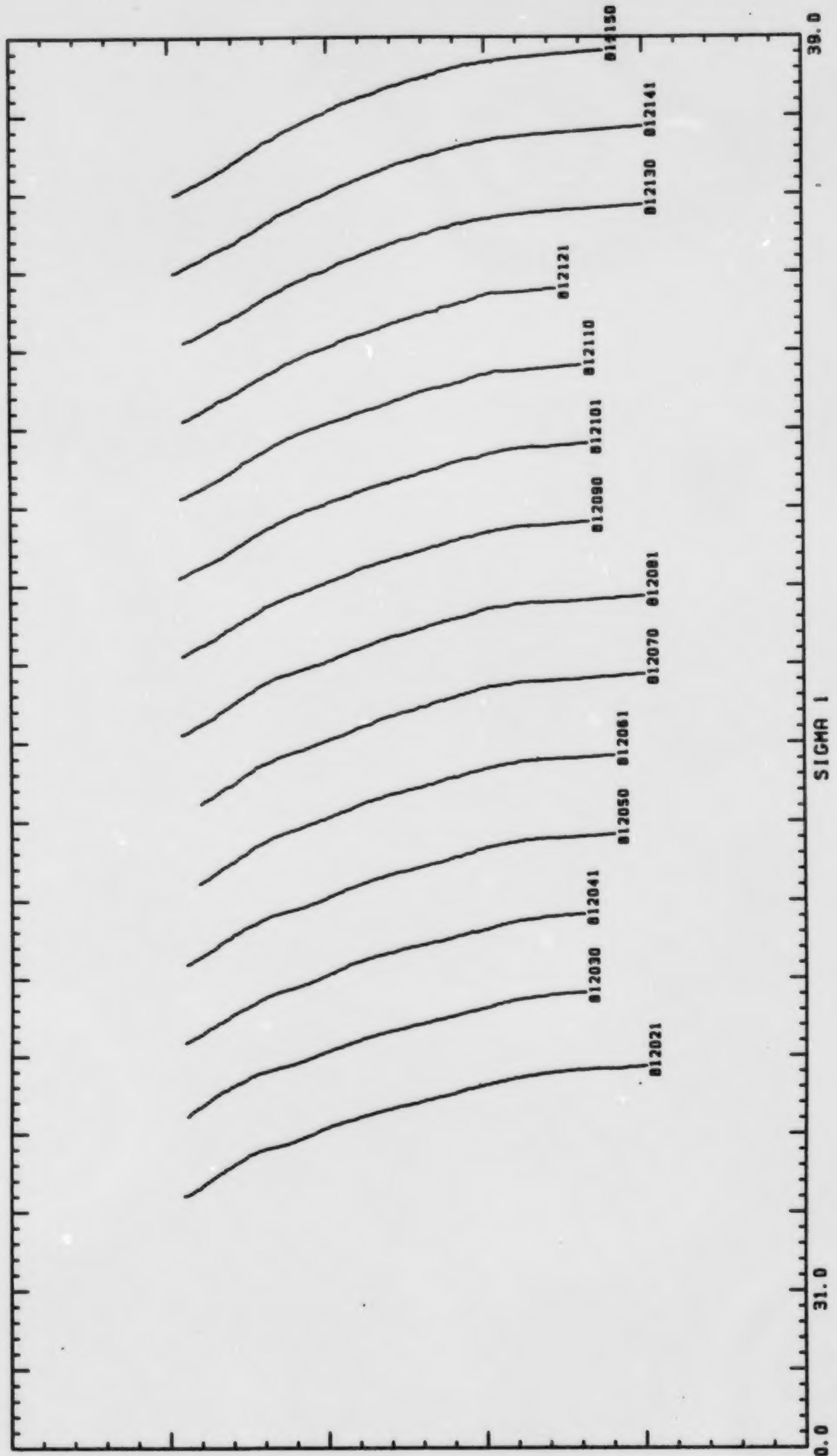




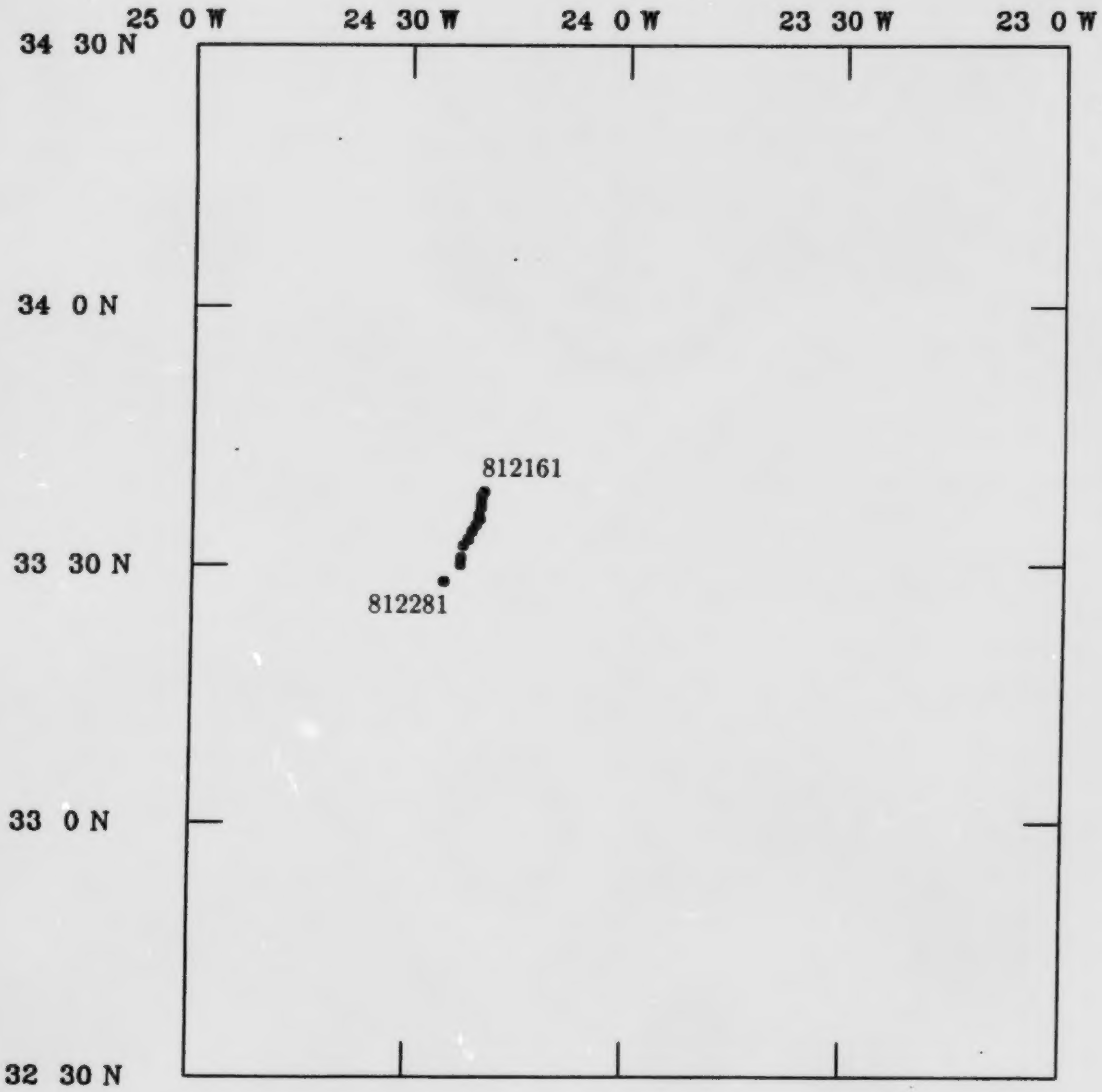
SALINITY
35
36
44
PRESSURE
0
500
2500
012150
012141
012130
012121
012110
012101
012090
012081
012070
012061
012050
012041
012030
012021

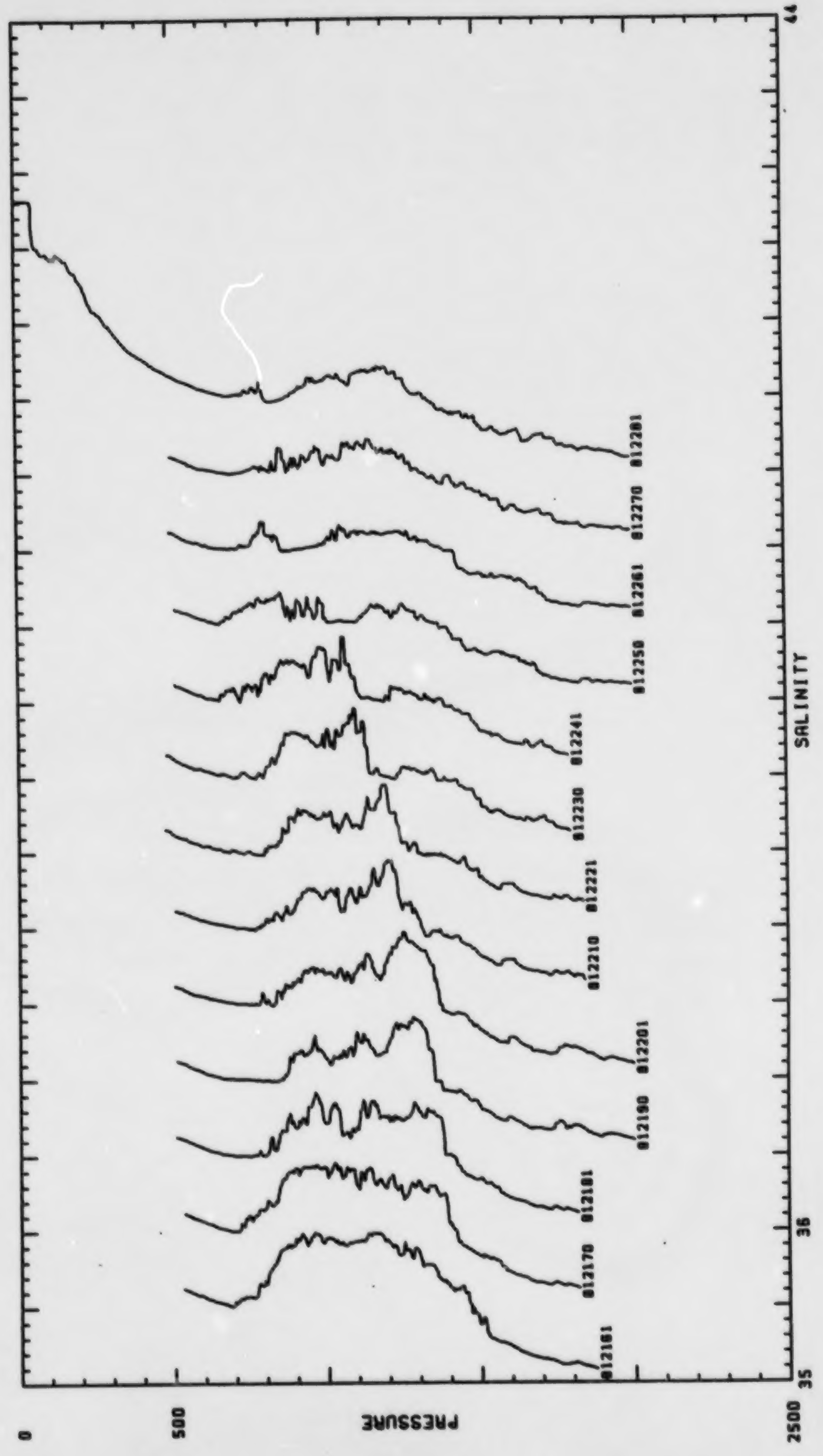


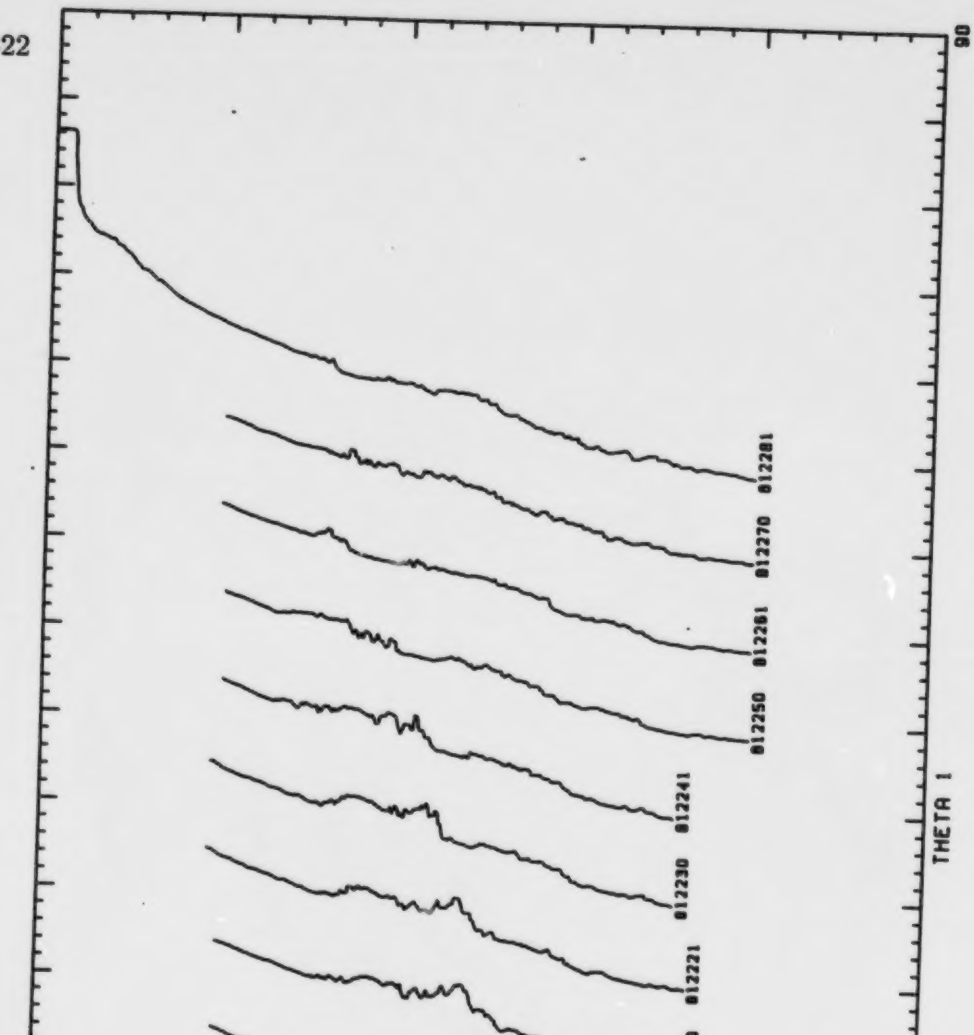
PRESSURE
0
500
2500
THETA I
0
10
90
012021
012030
012041
012050
012061
012070
012081
012090
012101
012110
012121
012130
012141
012150


PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
012021
012030
012041
012050
012061
012070
012081
012090
012101
012110
012121
012130
012141
012150

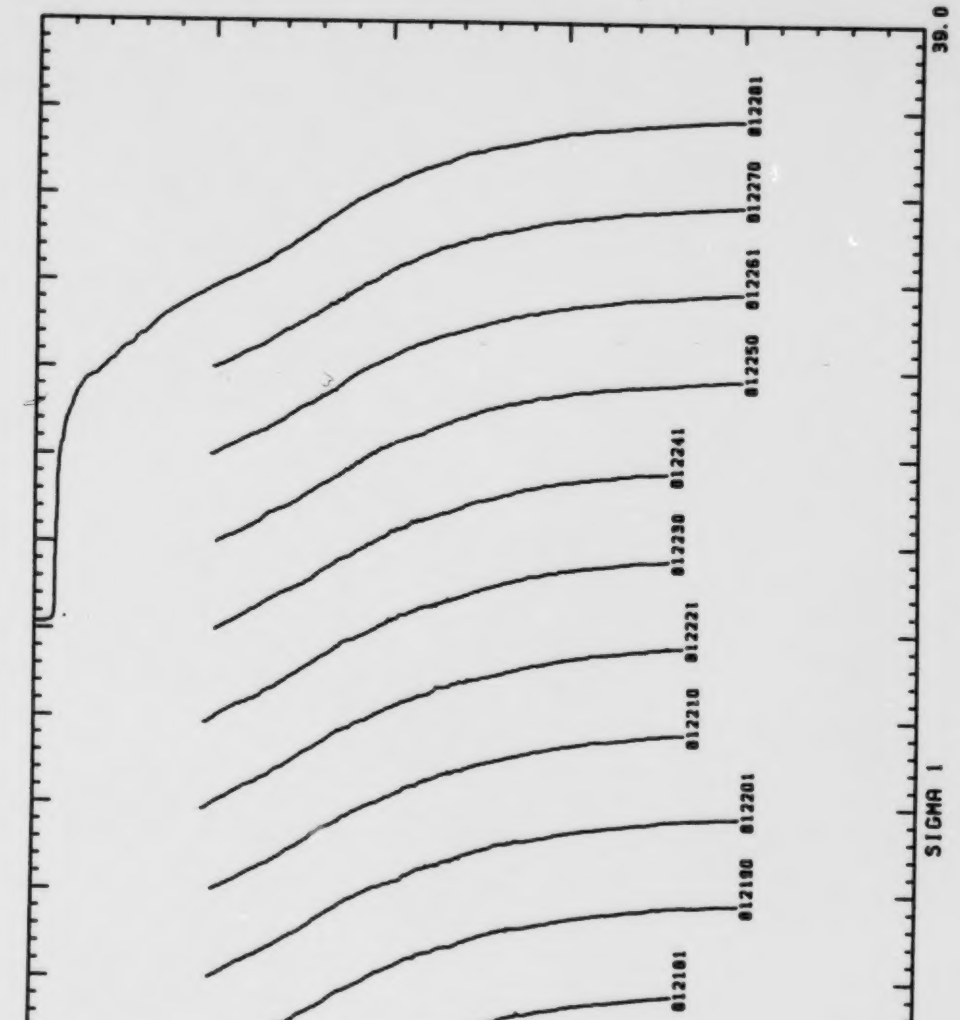
Survey III : October 1985




PRESSURE
0
500
2500
SALINITY
35
36
44
812281
812270
812261
812250
812241
812230
812221
812210
812201
812190
812181
812170
812161

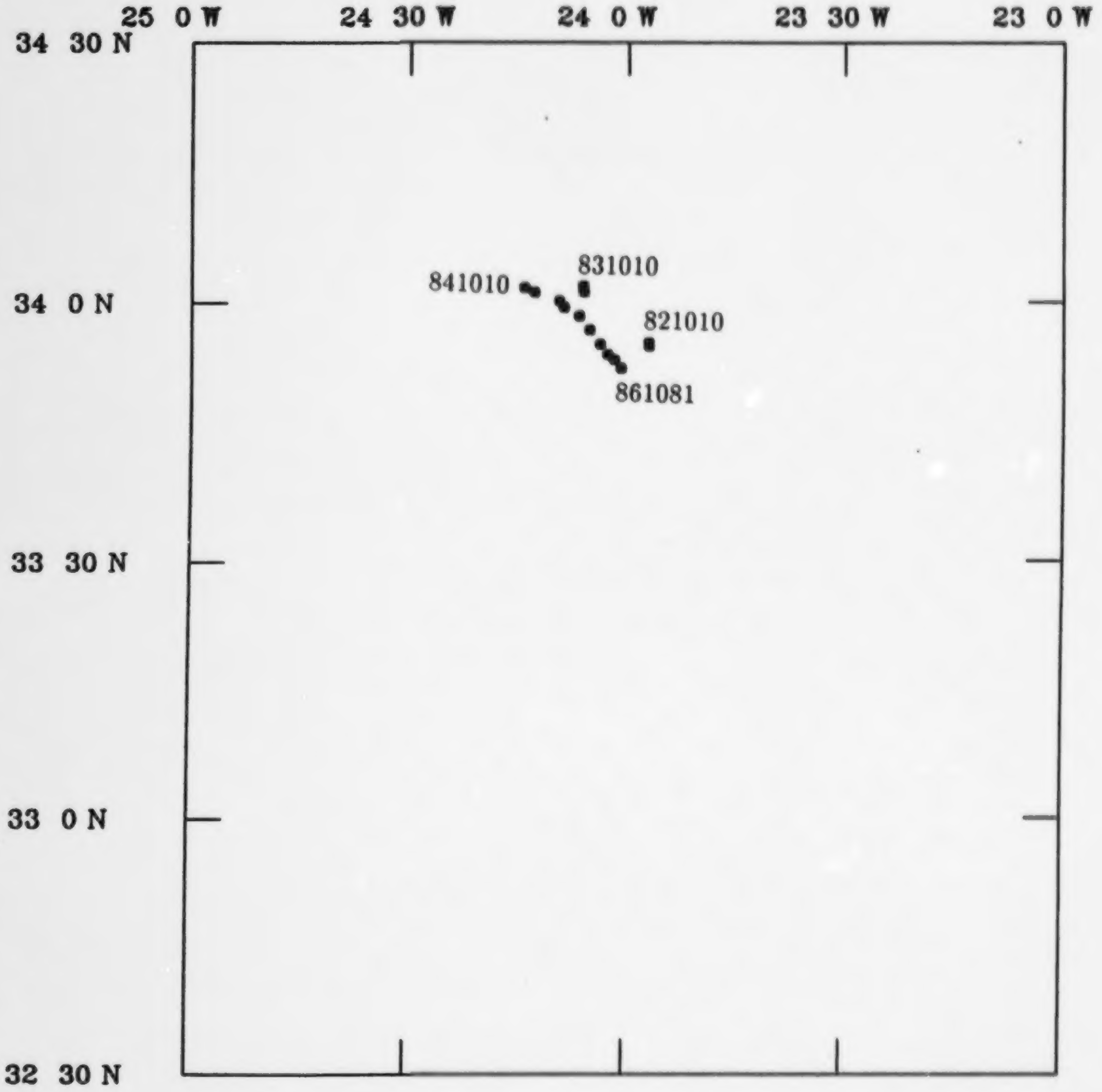


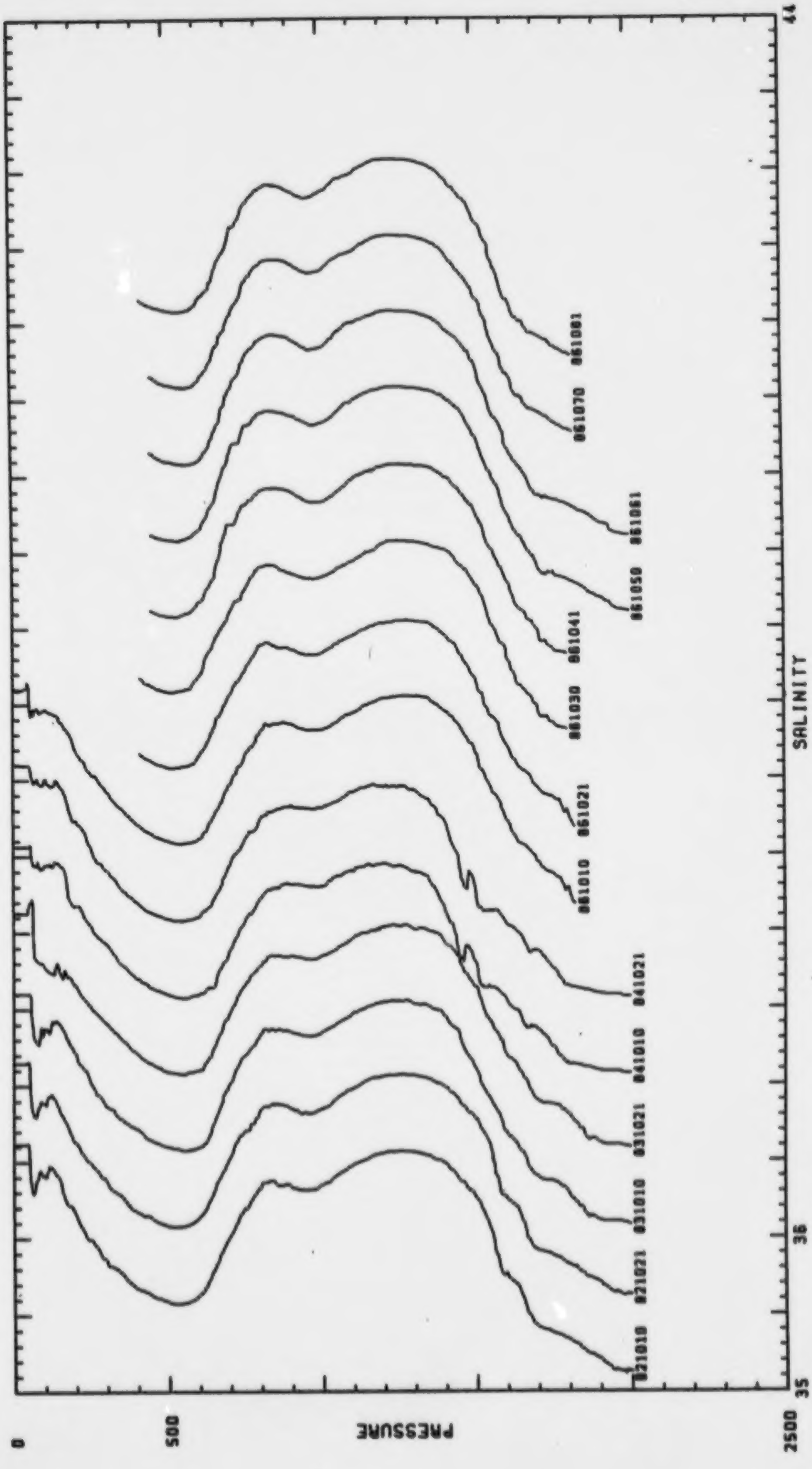
PRESSURE
0
500
2500
THETA 1
0
10
90
012281
012270
012261
012250
012241
012230
012221
012210
012201
012190
012181
012170
012161

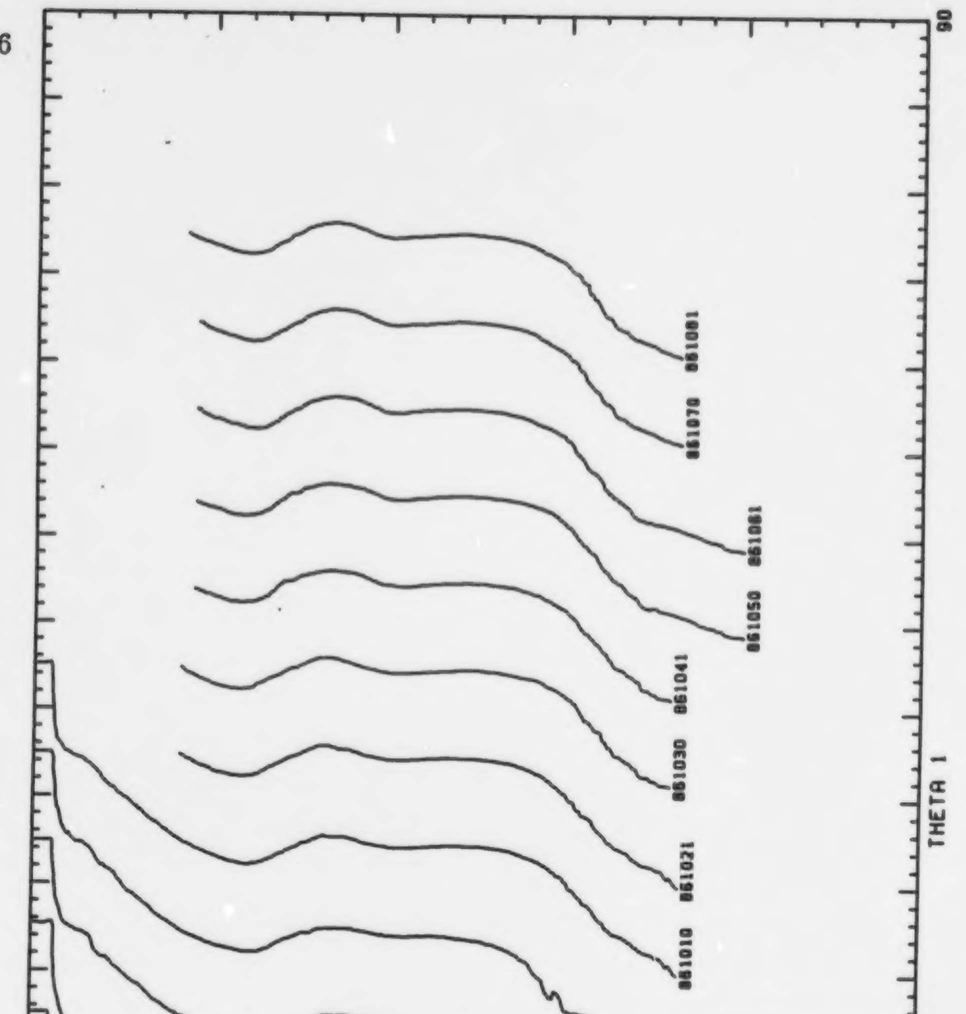


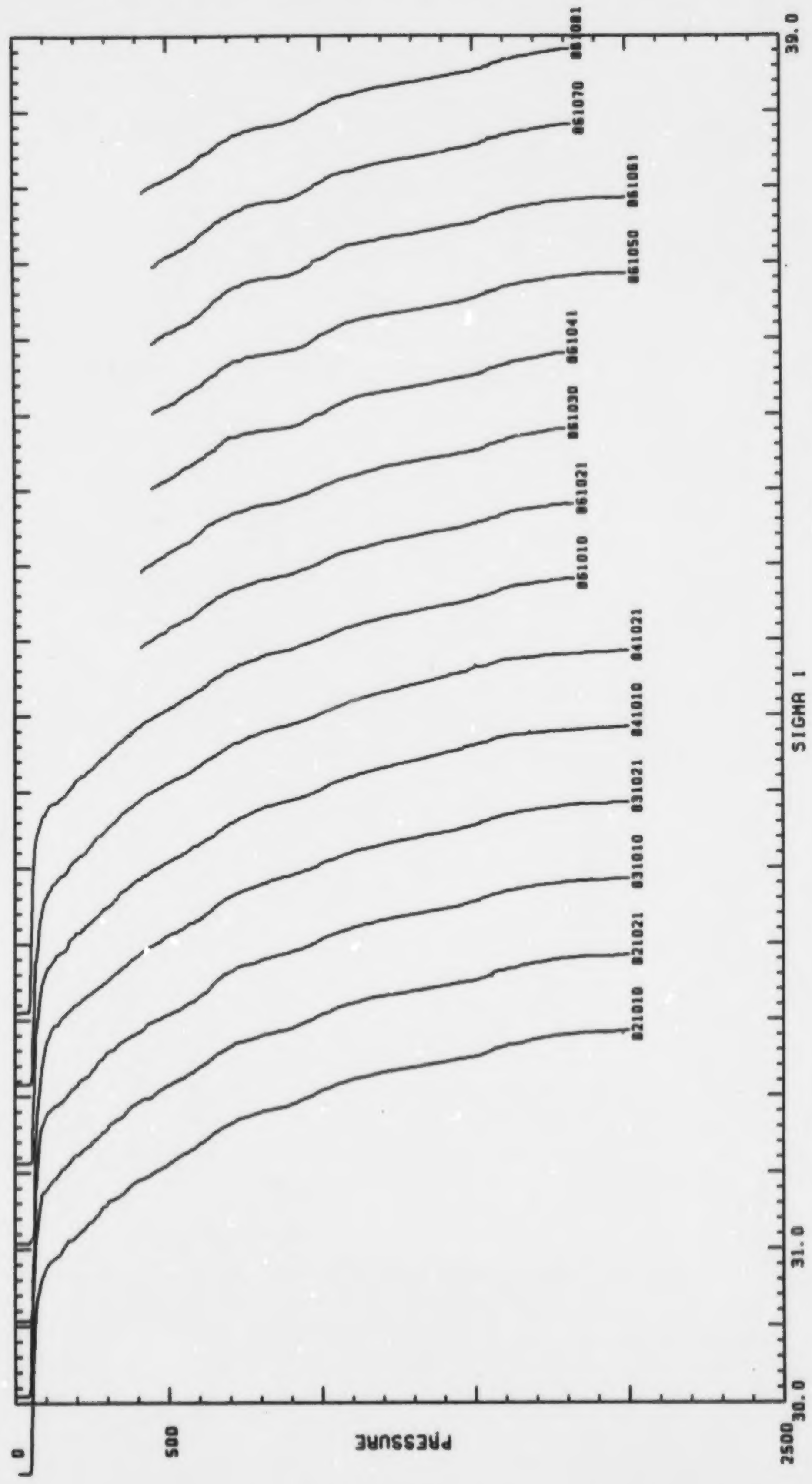
PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0

Survey III : October 1985

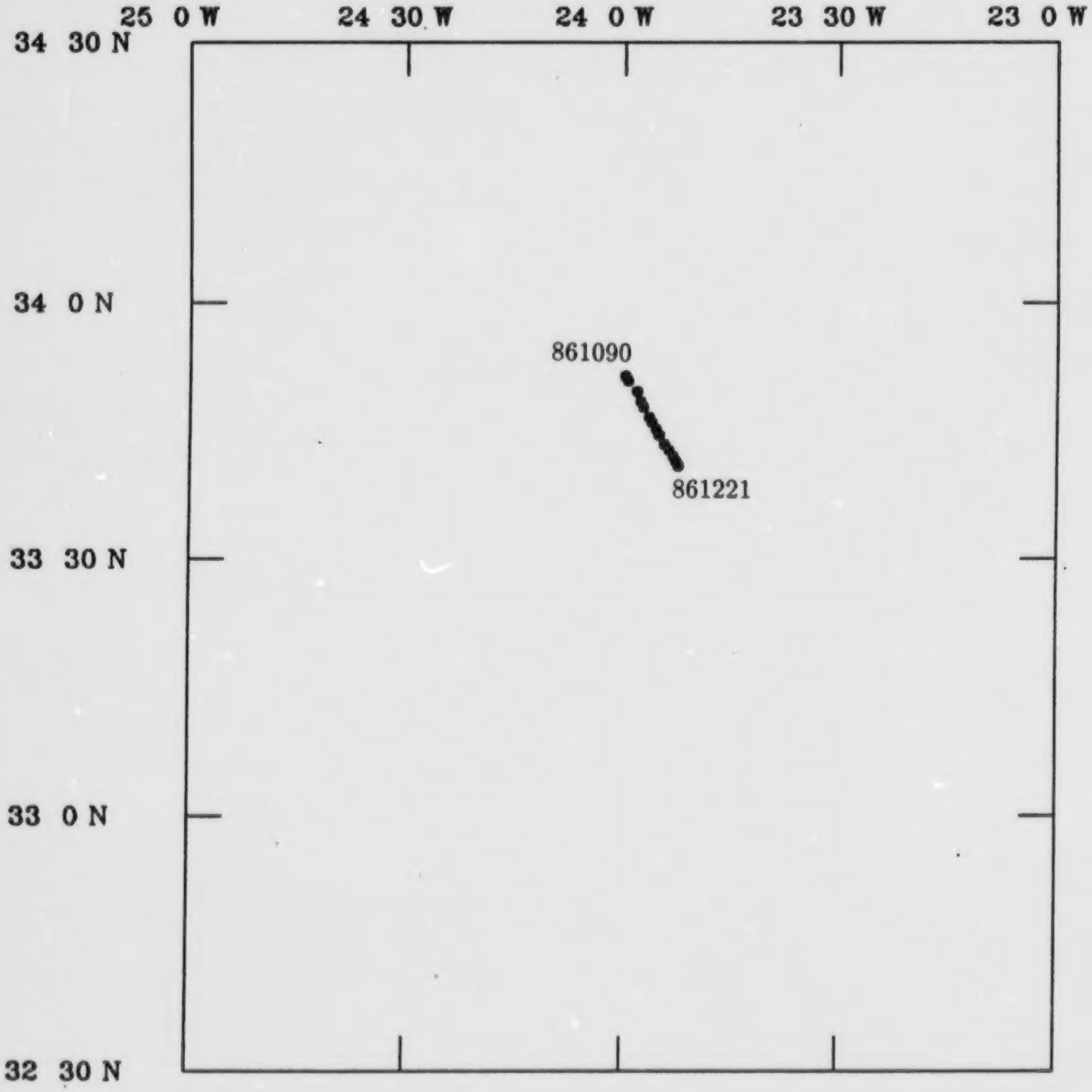


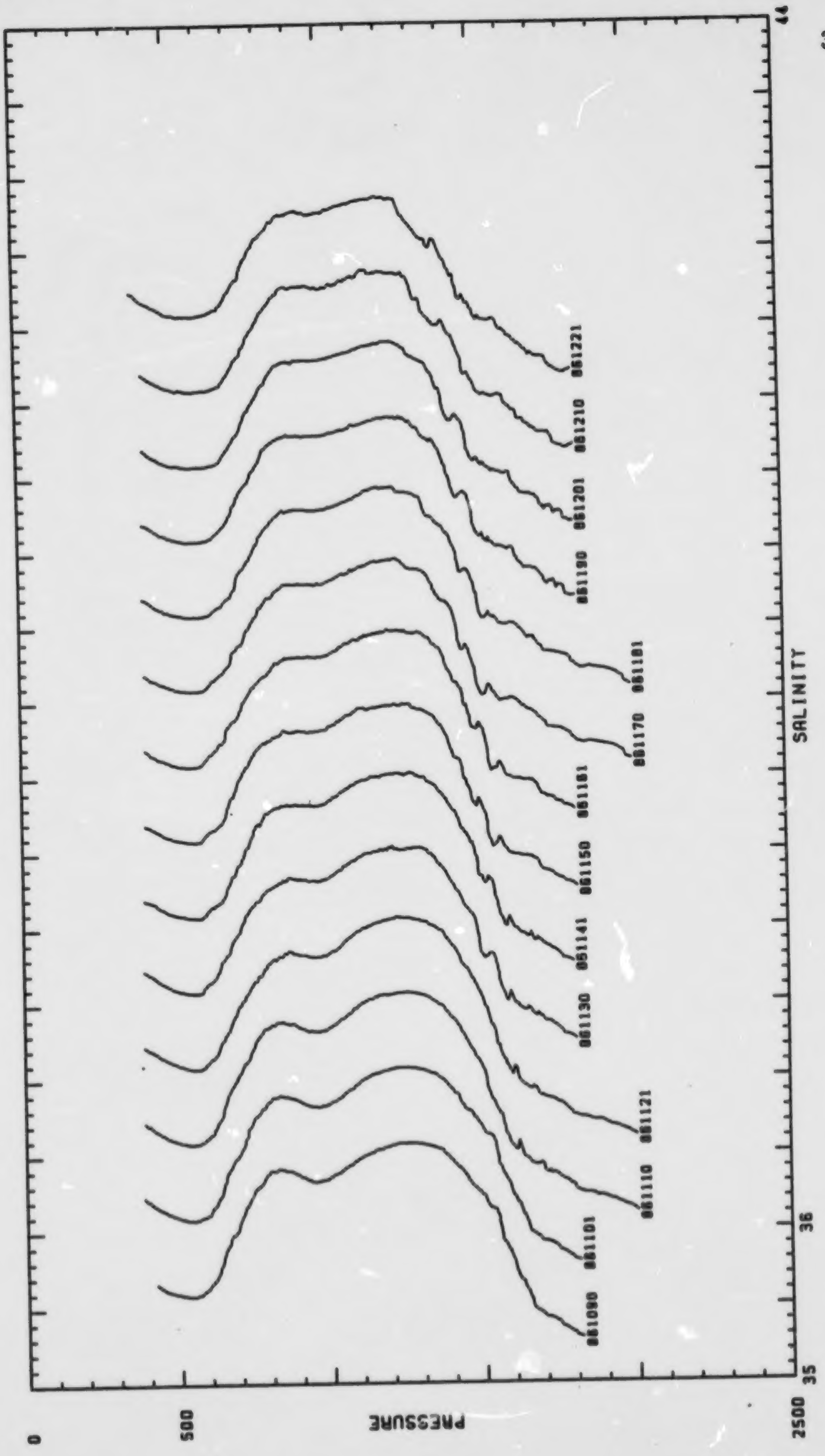

PRESSURE
0
500
2500
SALINITY
35
36
44
821010
821021
831010
831021
841010
841021
861010
861021
861030
861041
861050
861061
861070
861081

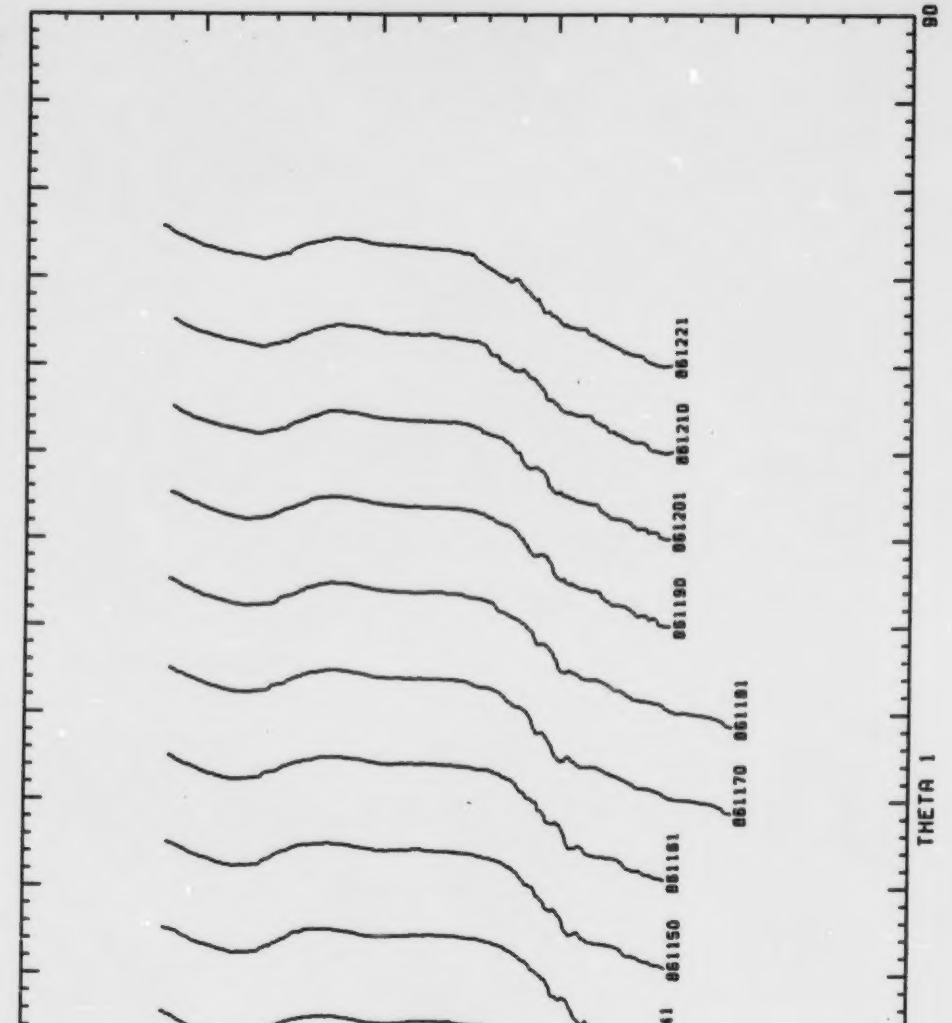

PRESSURE
0
500
2500
THETA 1
0
10
90
821010
821021
831010
831021
841010
841021
861010
861021
861030
861041
861050
861061
861070
861081

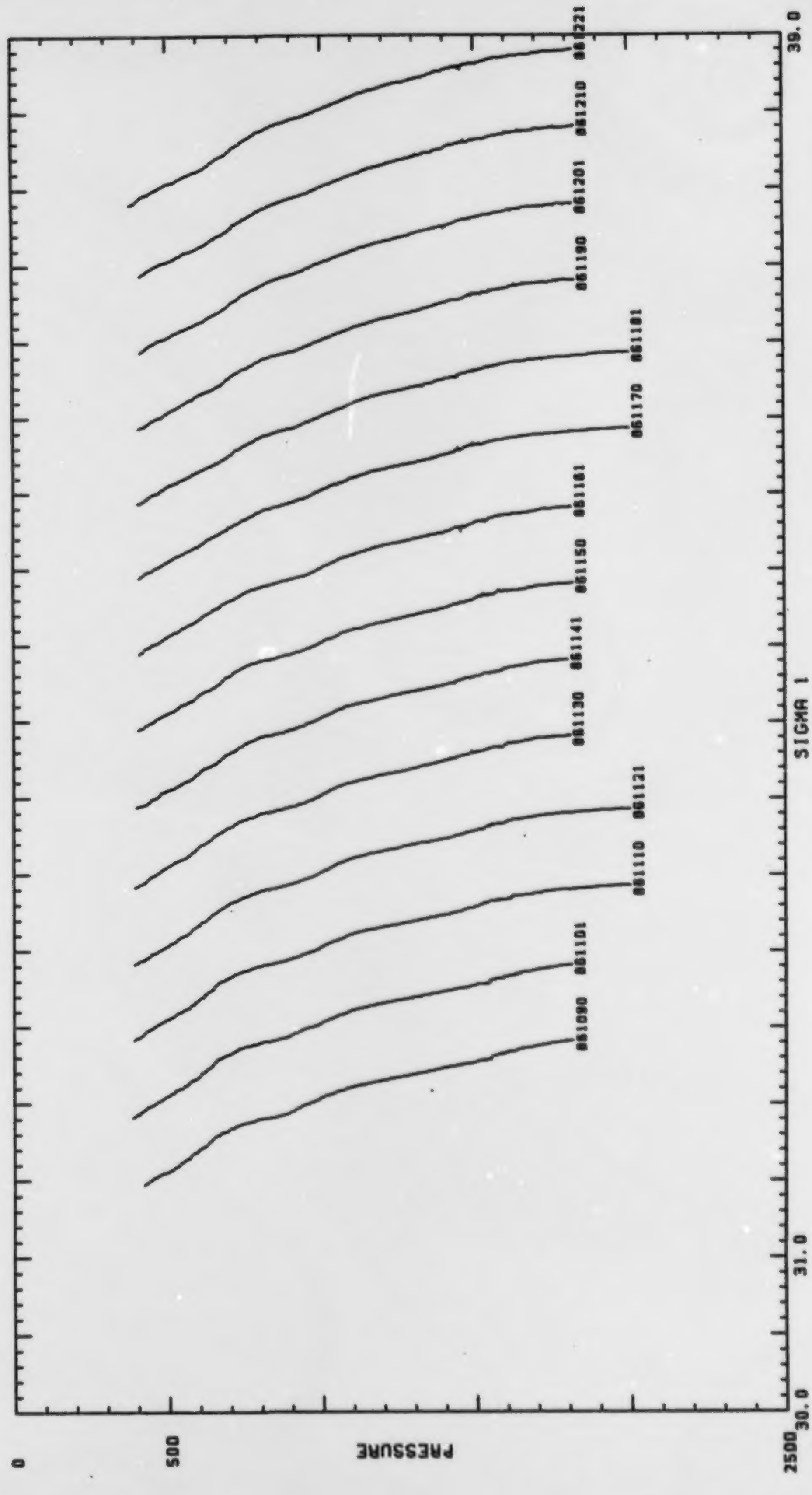

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
821010
821021
831010
831021
841010
841021
861010
861021
861030
861041
861050
861061
861070
861081

Survey III : October 1985

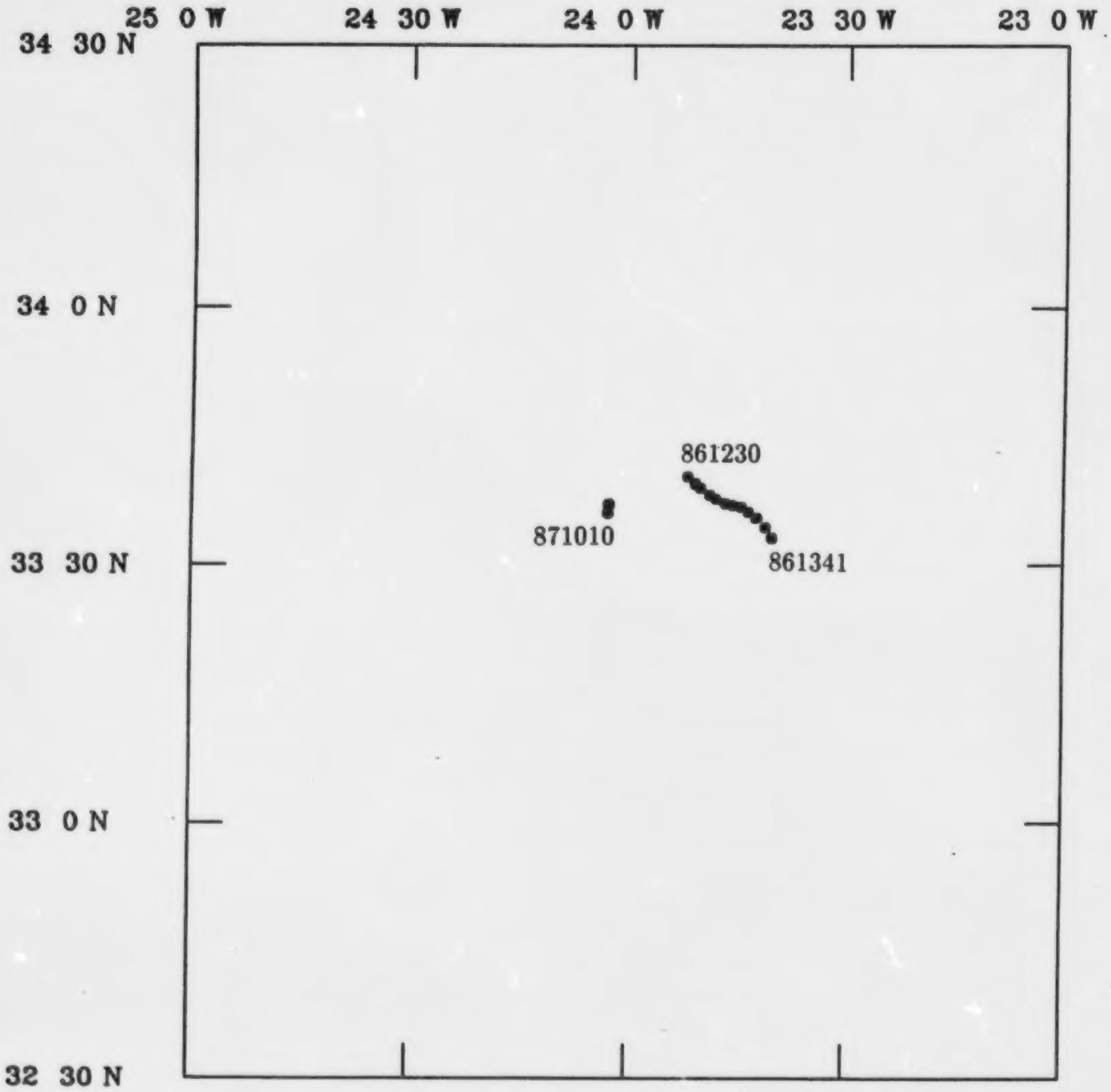


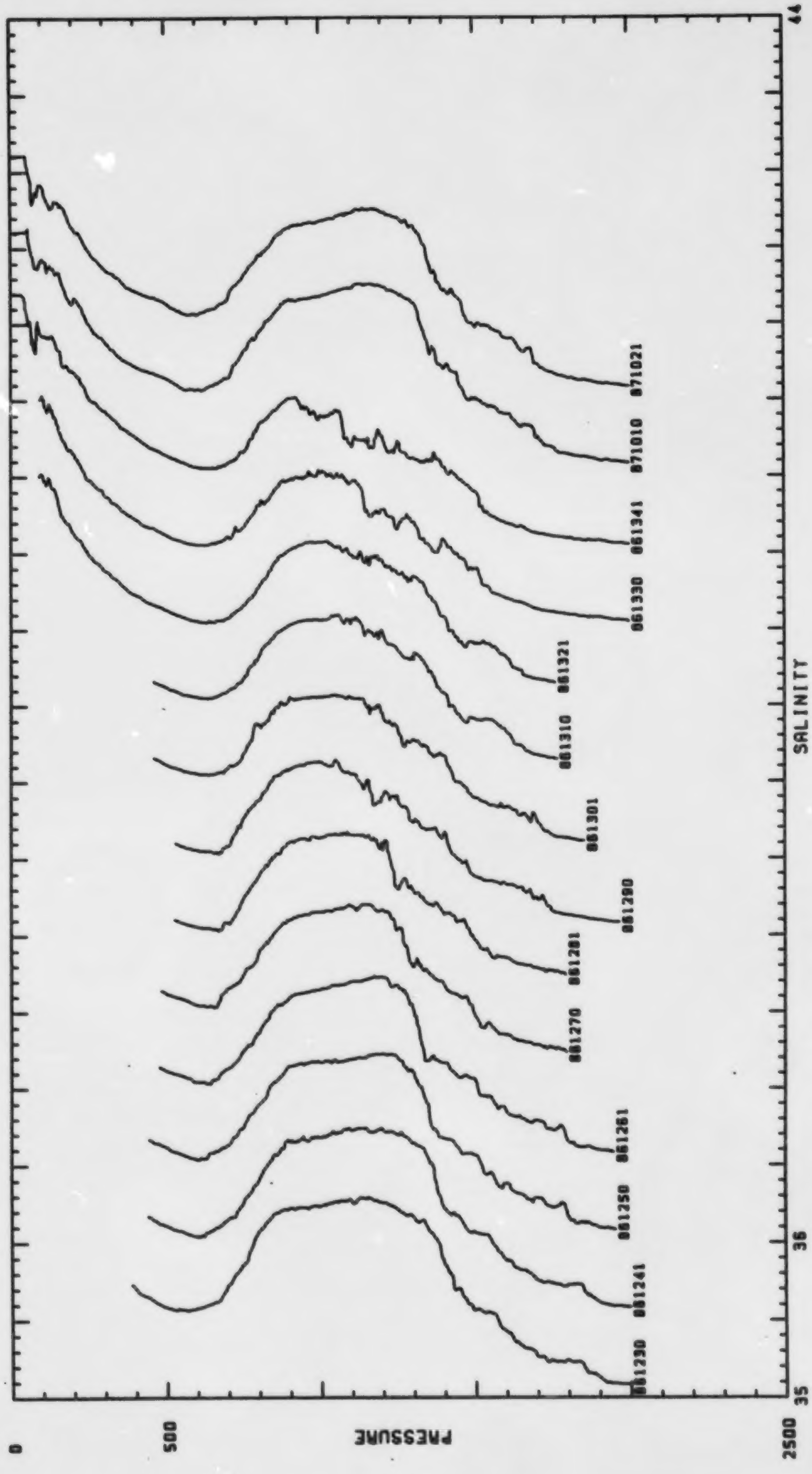

PRESSURE
0
500
2500
SALINITY
35
36
861090
861101
861110
861121
861130
861141
861150
861161
861170
861181
861190
861201
861210
861221

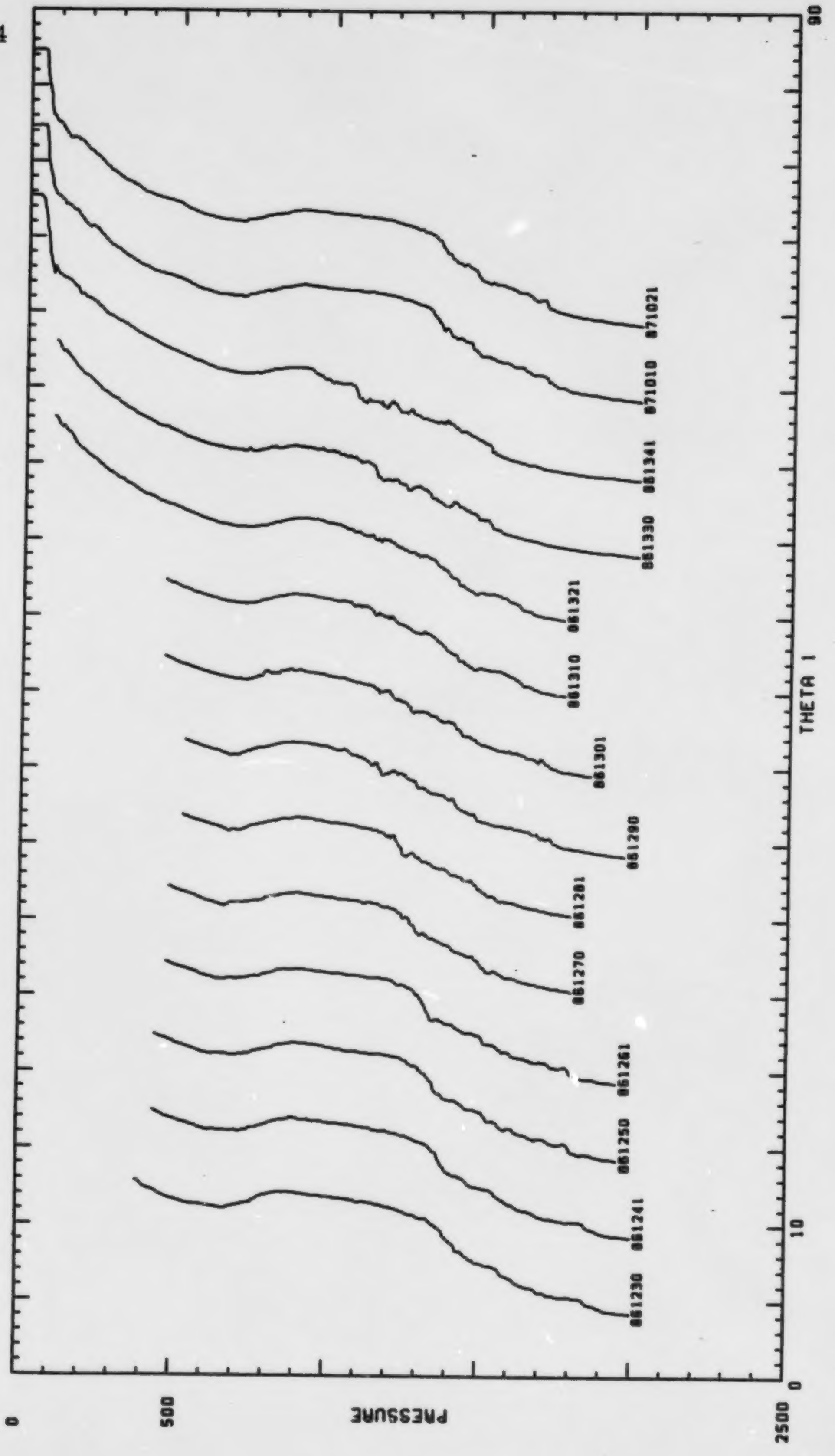

PRESSURE
0
500
2500
THETA 1
0
10
90
861090
861101
861110
861121
861130
861141
861150
861161
861170
861181
861190
861201
861210
861221

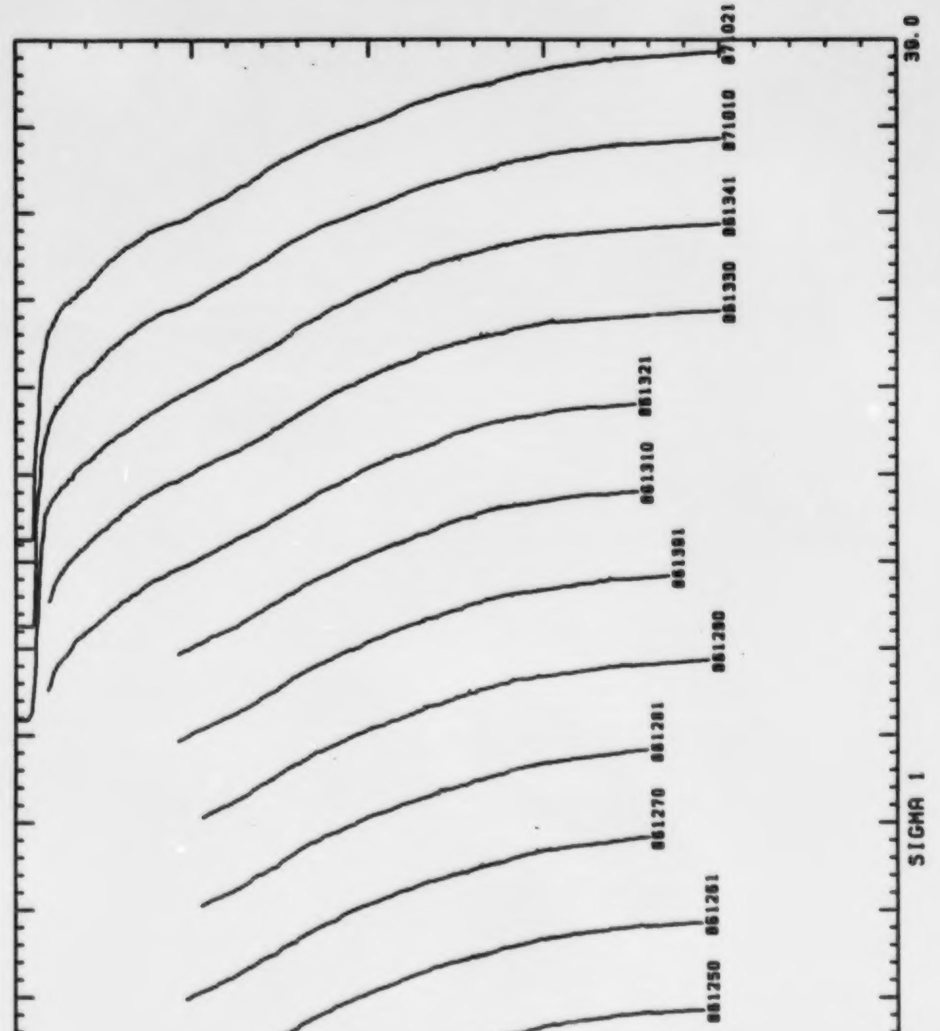

861221
861210
861201
861190
861181
861170
861161
861150
861141
861130
861121
861110
861101
861090
SIGMA 1
30.0
31.0
39.0
PRESSURE
0
500
2500

Survey III : October 1985

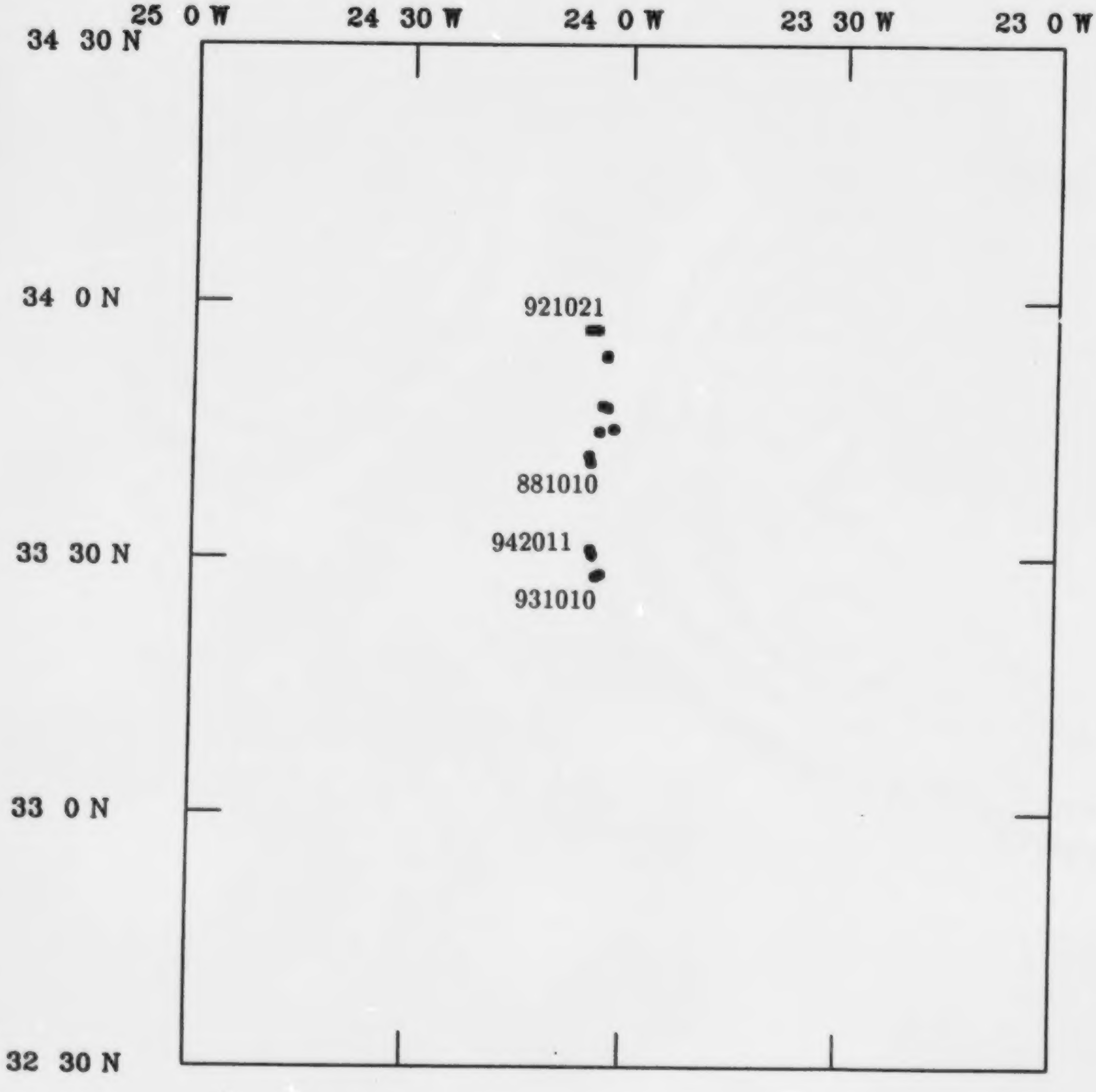


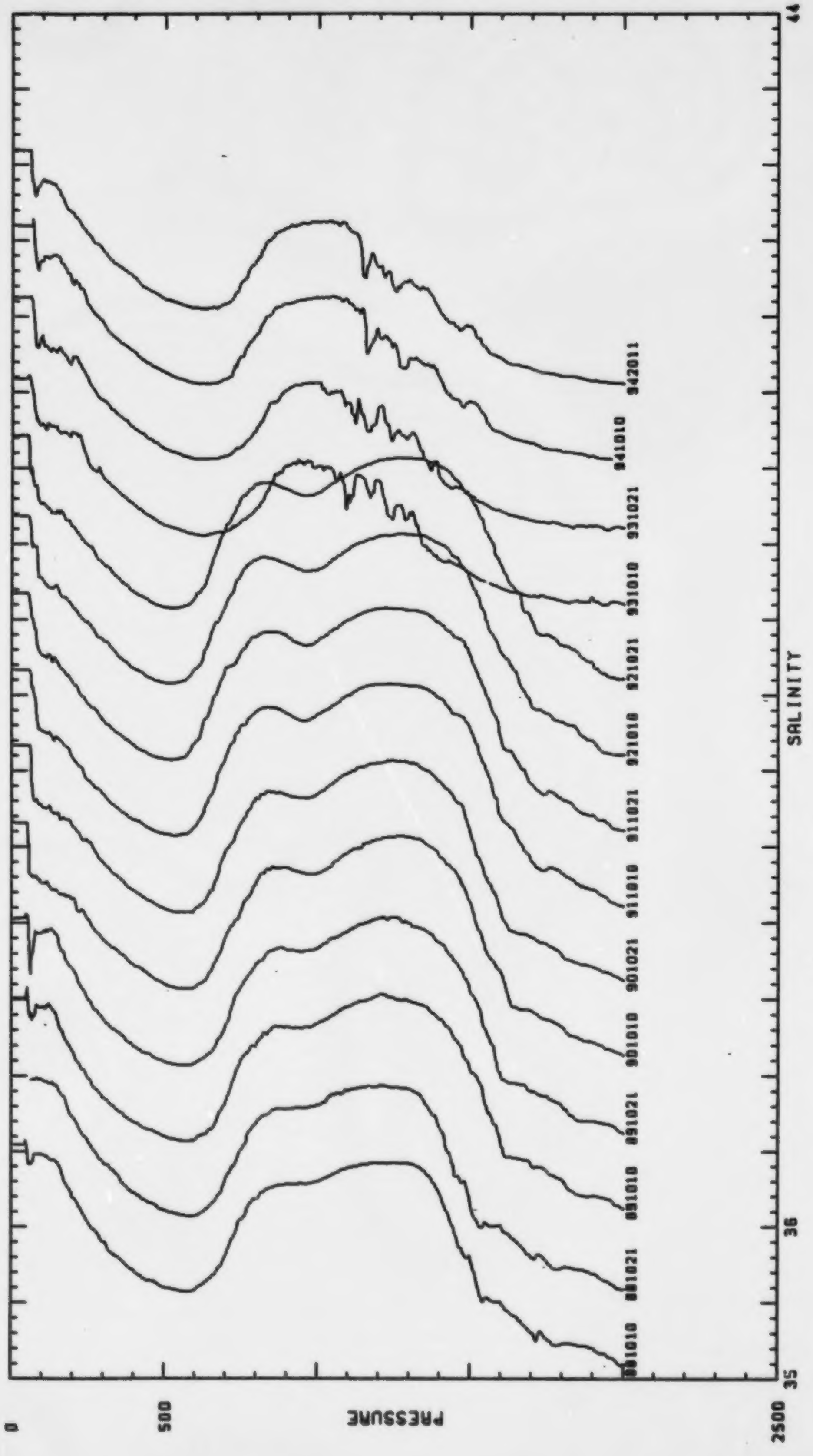

PRESSURE
0
500
2500
SALINITY
35
36
44
871021
871010
861341
861330
861321
861310
861301
861290
861281
861270
861261
861250
861241
861230

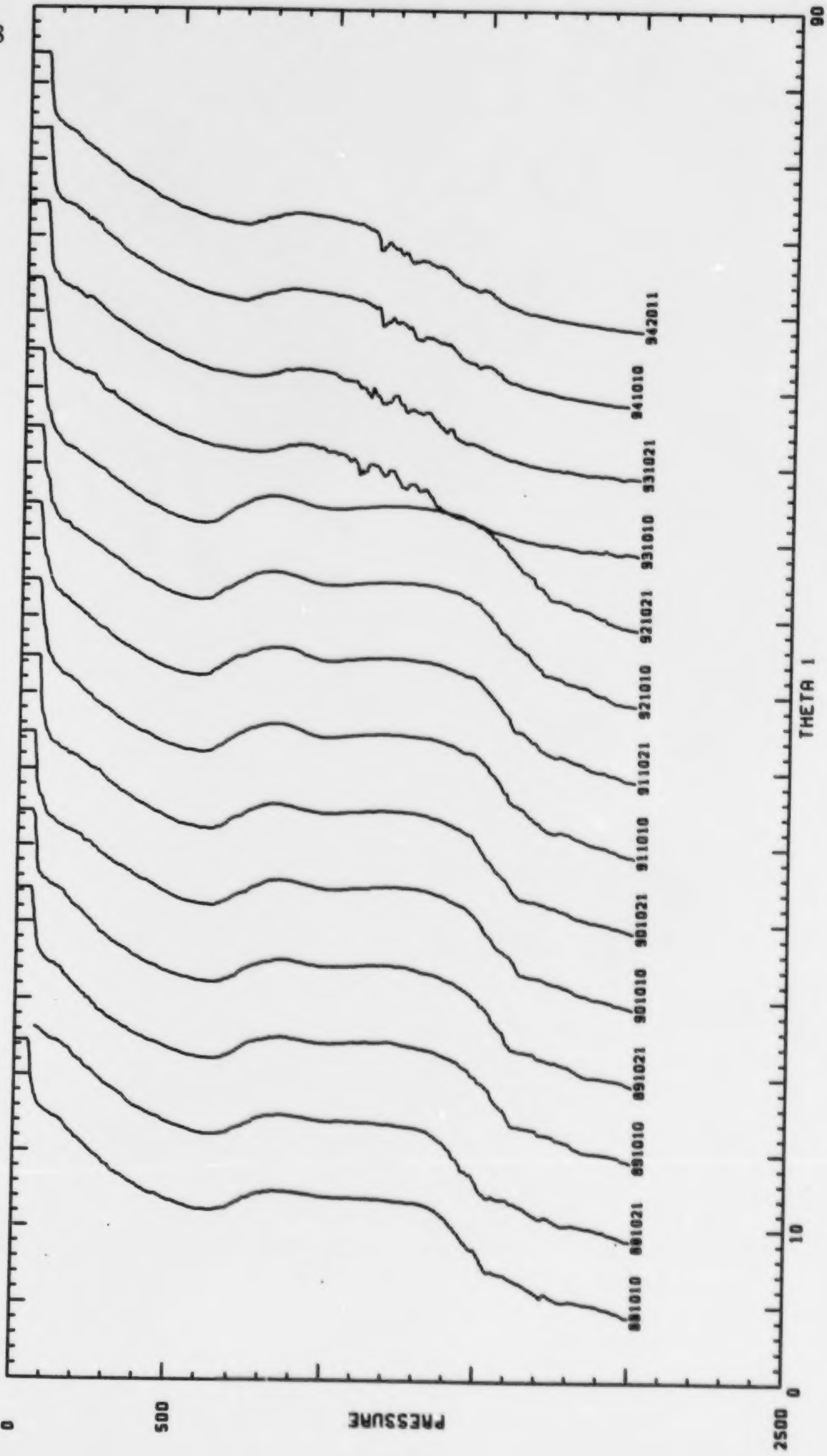

871021
871010
861341
861330
861321
861310
861301
861290
861281
861270
861261
861250
861241
861230
THETA 1
0
10
90
PRESSURE
0
500
2500

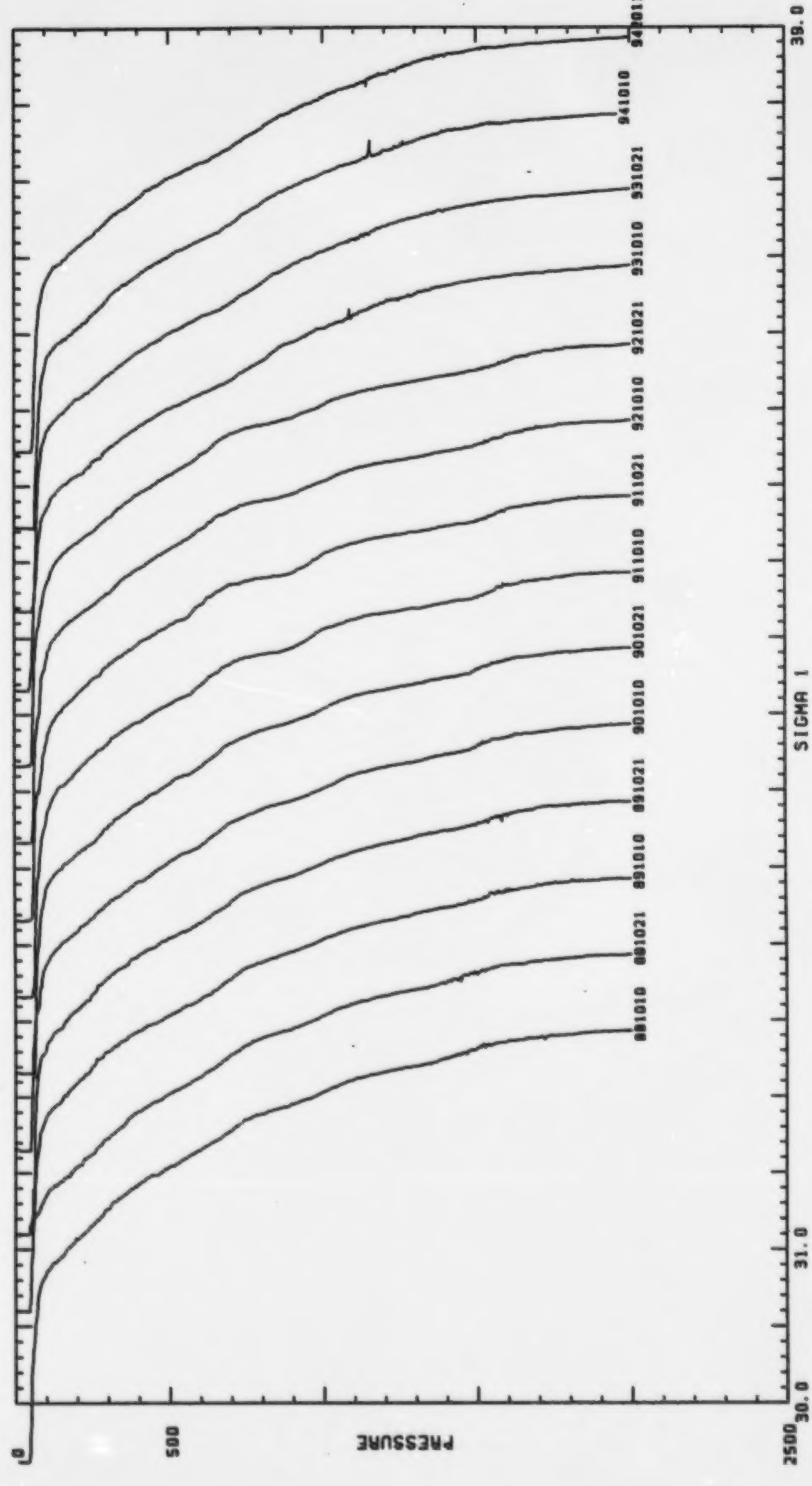

871021
871010
861341
861330
861321
861310
861301
861290
861281
861270
861261
861250
861241
861230
30.0
31.0
30.0
SIGMA 1
PRESSURE
0
500
2500

Survey III : October 1985

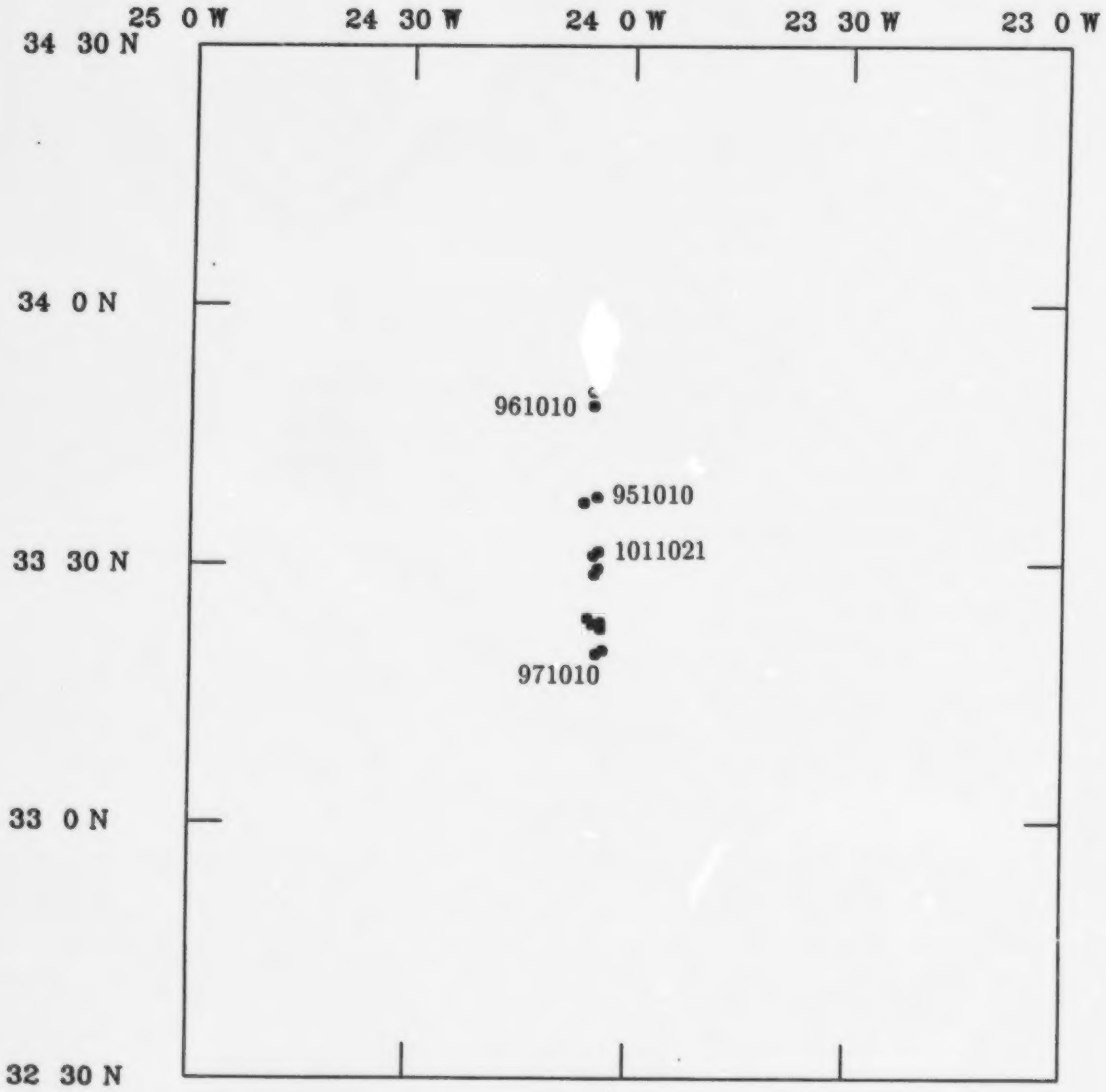


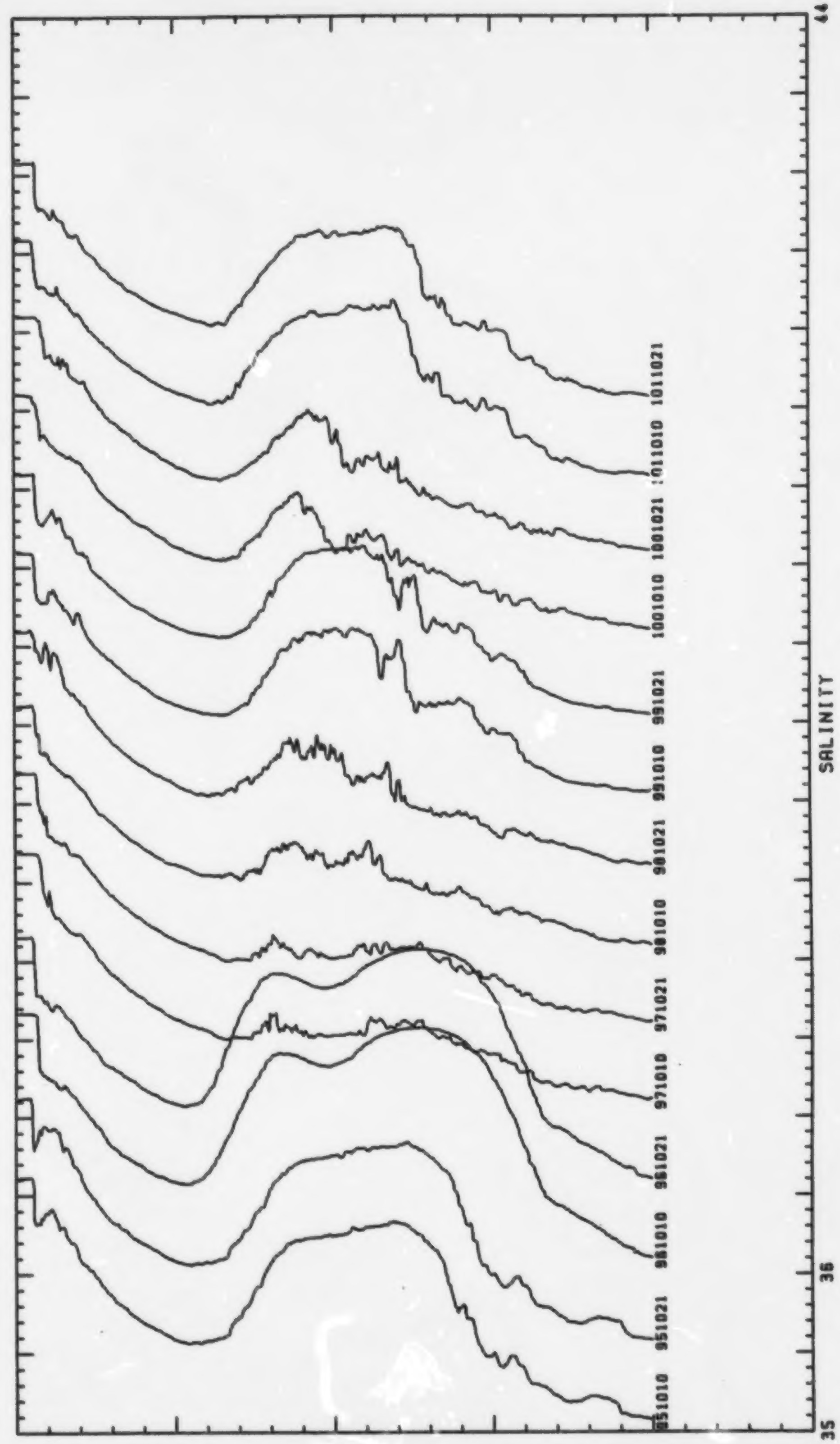

PRESSURE
0
500
2500
SALINITY
35
36
44
881010
881021
891010
891021
901010
901021
911010
911021
921010
921021
931010
931021
941010
942011

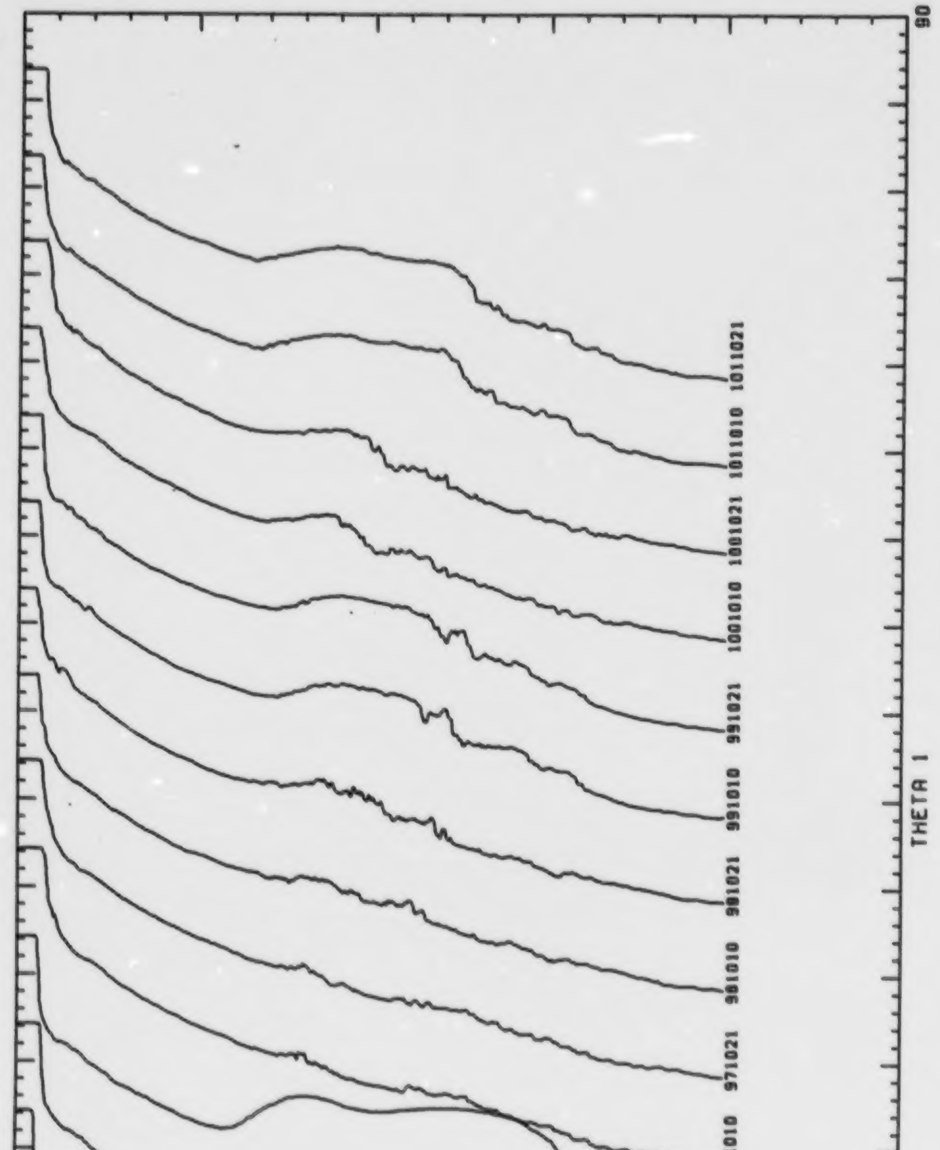

PRESSURE
0
500
2500
THETA I
0
10
90
881010
881021
891010
891021
901010
901021
911010
911021
921010
921021
931010
931021
941010
942011

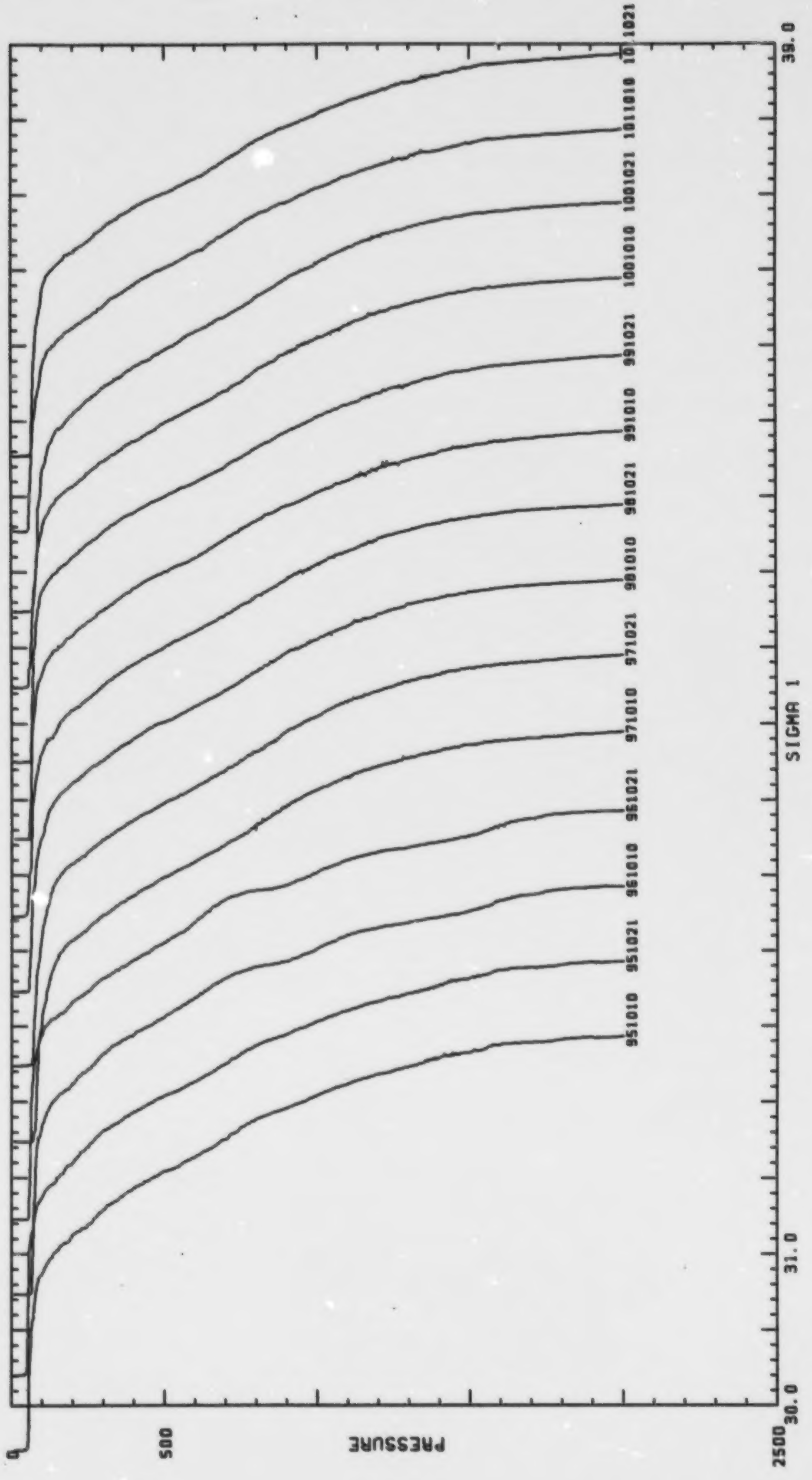

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
941010
931021
931010
921021
921010
911021
911010
901021
901010
891021
891010
881021
881010

Survey III : October 1985



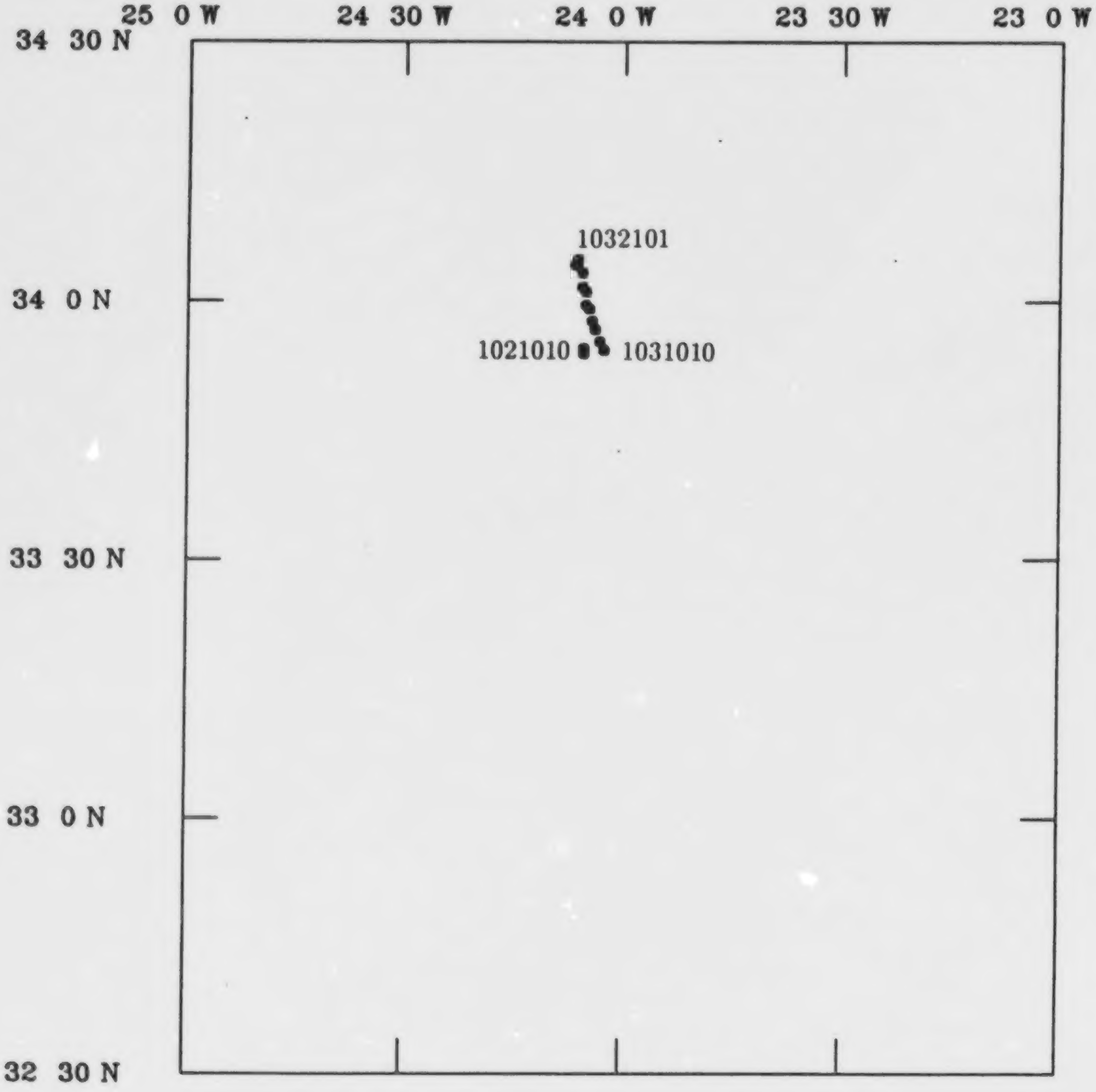

0
500
PRESSURE
2500
35
36
44
SALINITY
951010
951021
961010
961021
971010
971021
981010
981021
991010
991021
1001010
1001021
1011010
1011021

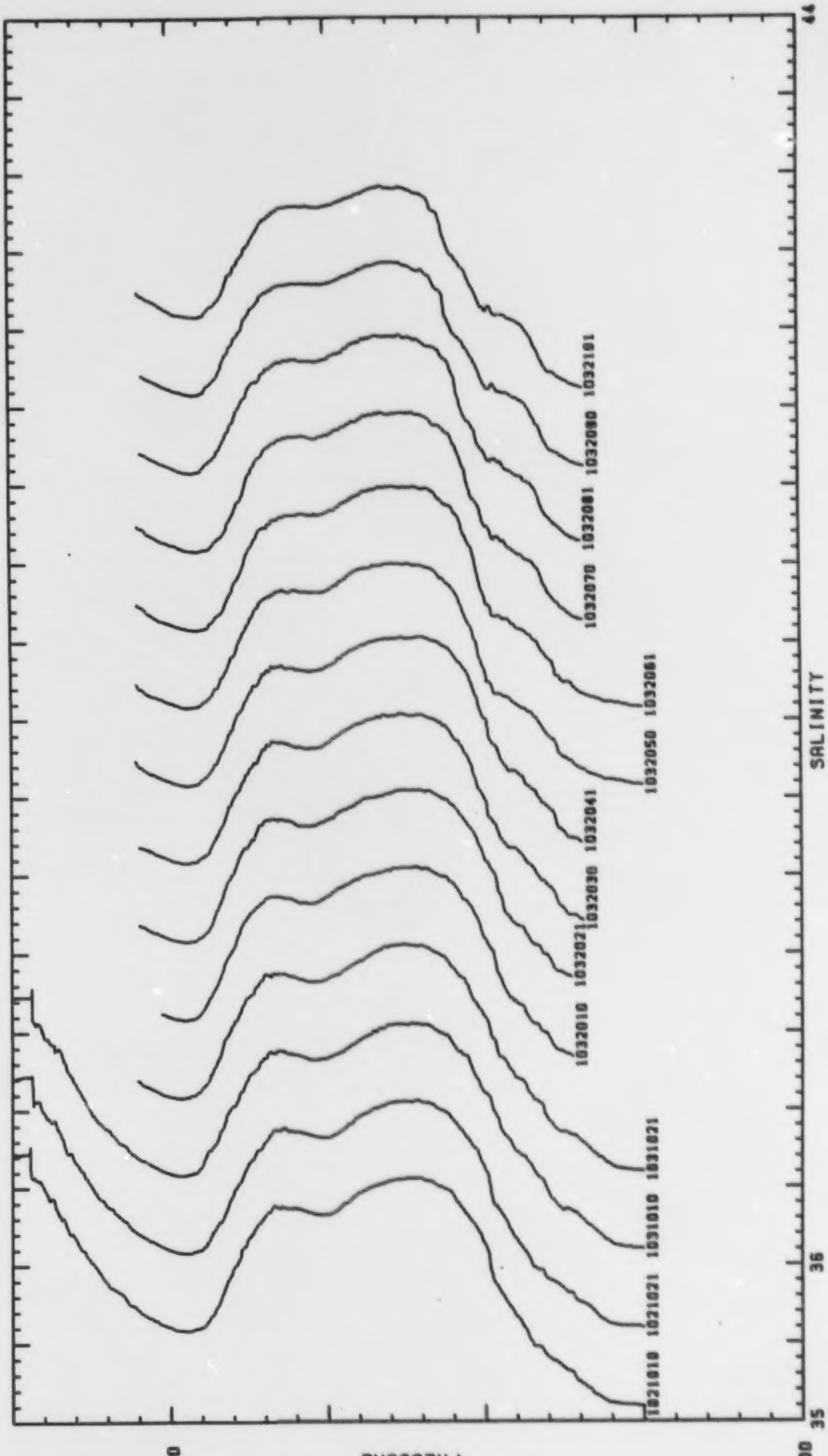

951010
951021
961010
961021
971010
971021
981010
981021
991010
991021
1001010
1001021
1011010
1011021
THETA 1
0
10
90
PRESSURE
0
500
2500

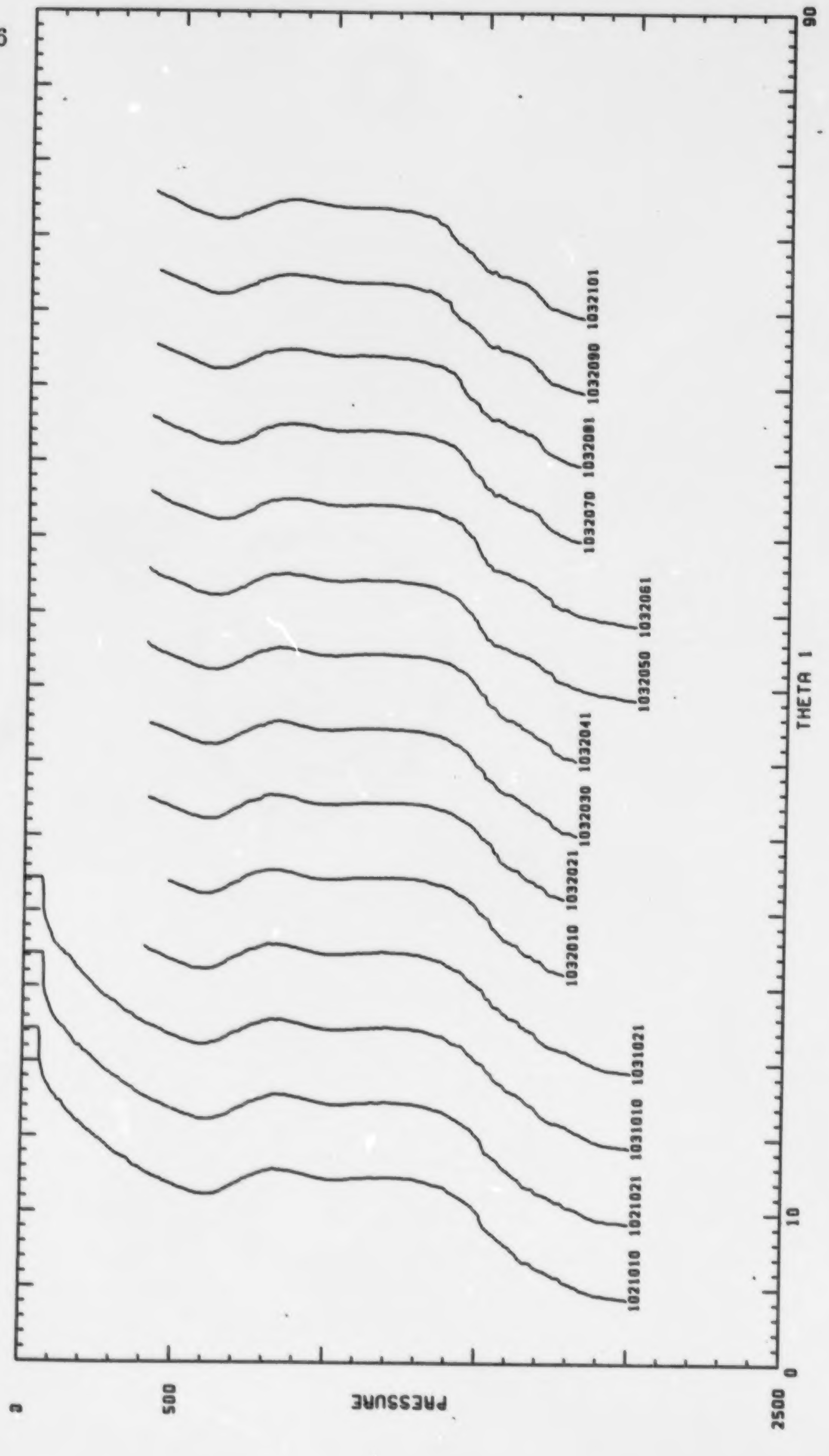


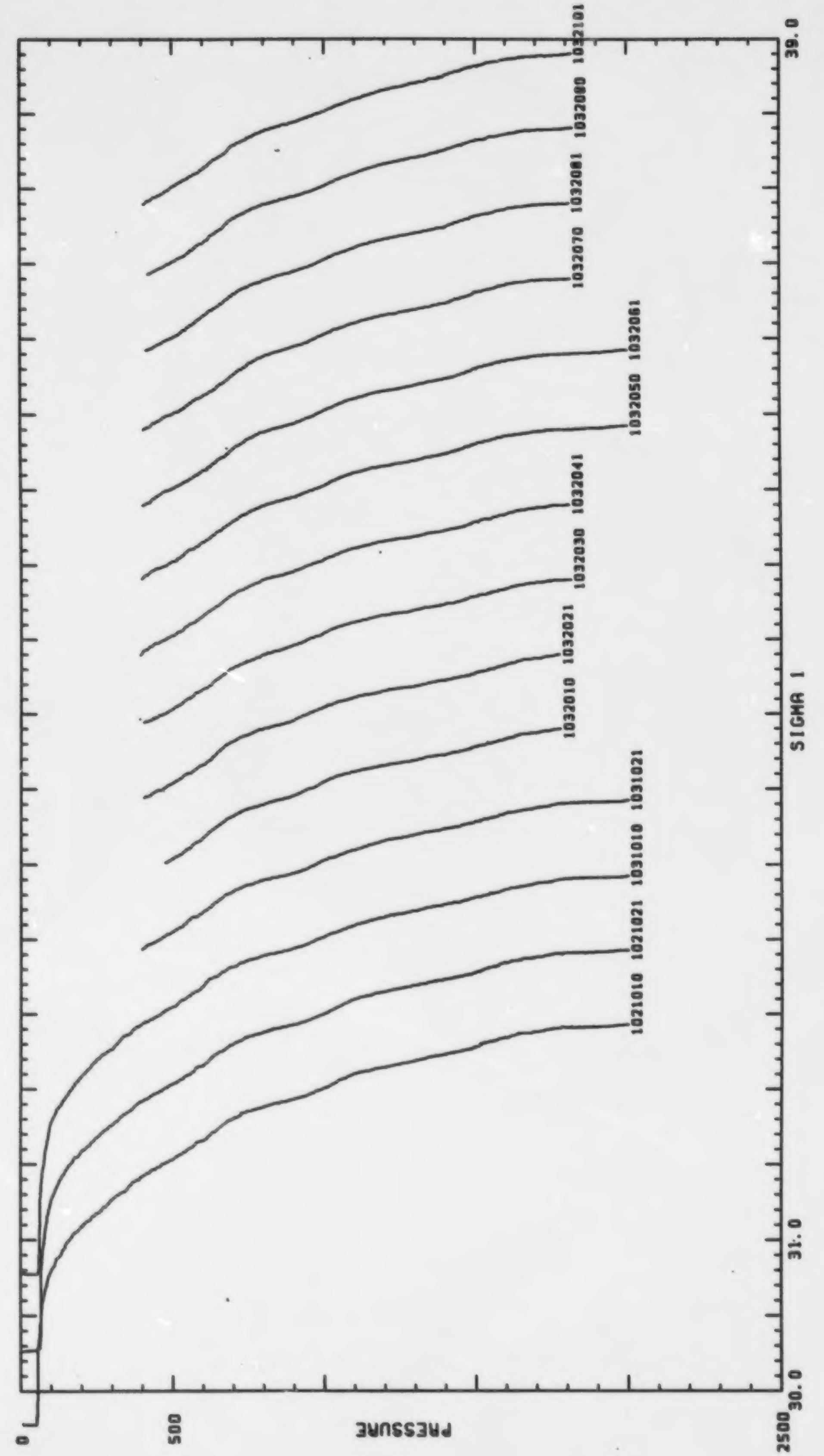
951010
951021
961010
961021
971010
971021
981010
981021
991010
991021
1001010
1001021
1011010
1011021
SIGMA 1
30.0
31.0
39.0
PRESSURE
0
500
2500

Survey III : October 1985

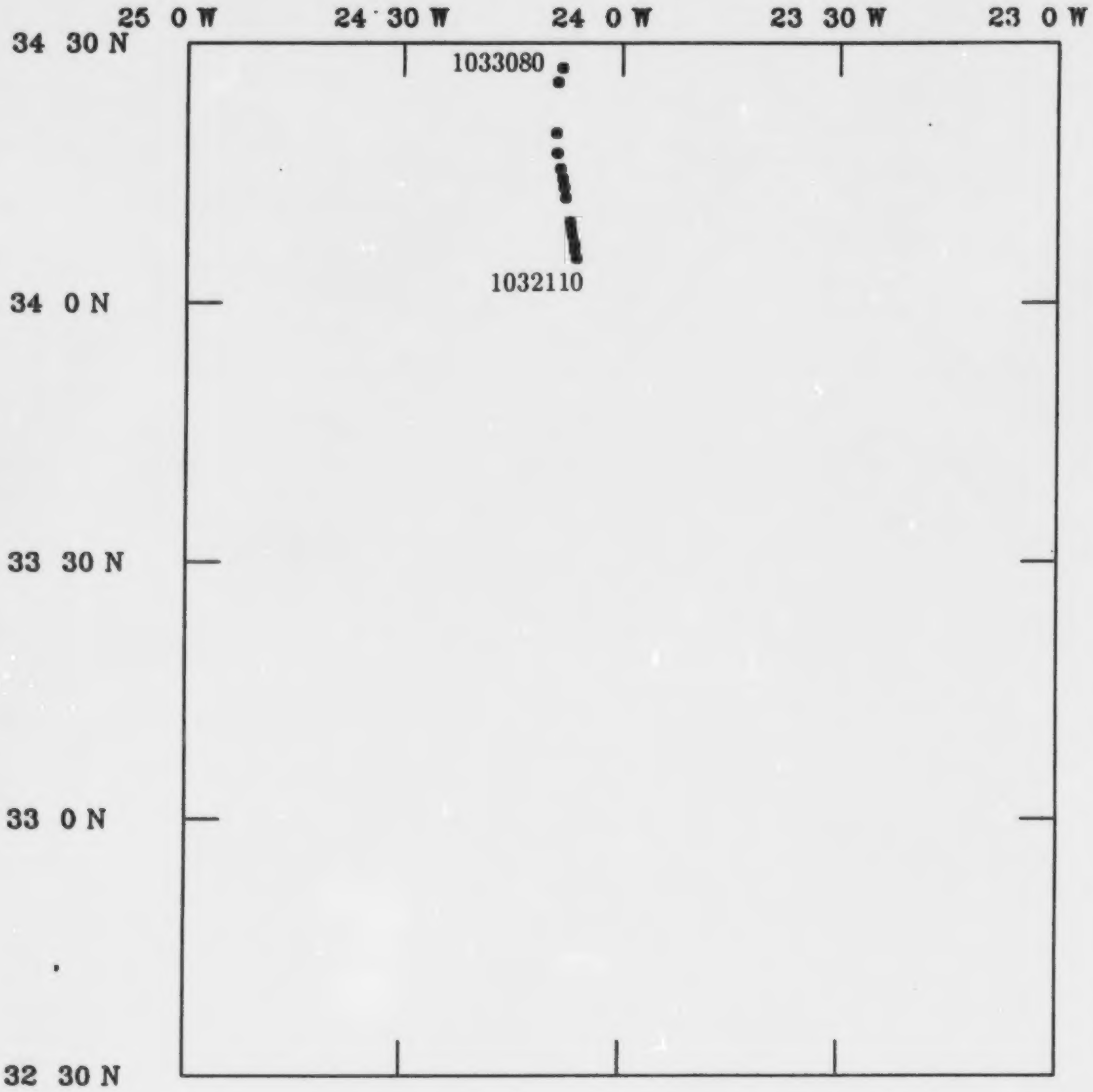


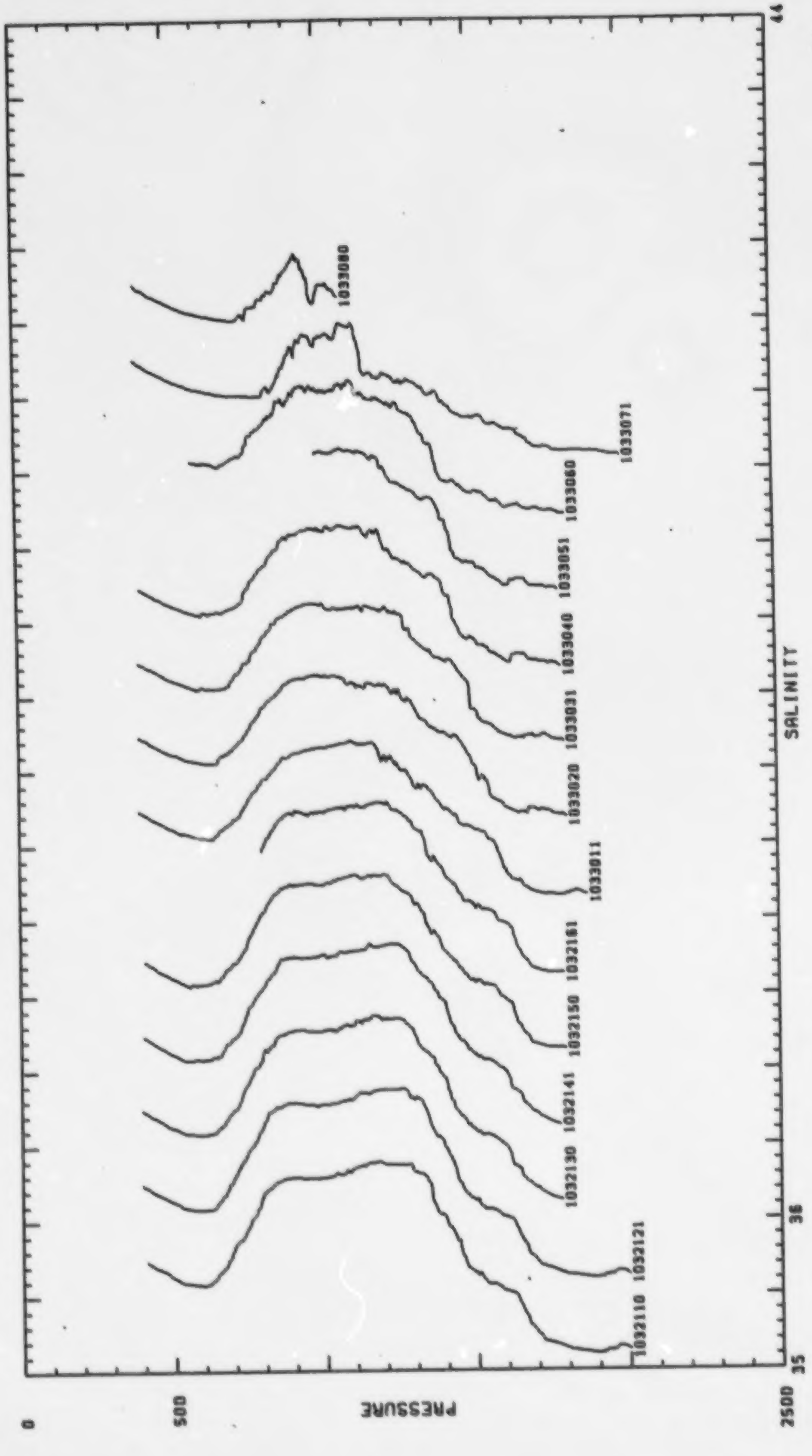

0
500
PRESSURE
2500
35
36
44
SALINITY
1021010
1021021
1031010
1031021
1032010
1032021
1032030
1032041
1032050
1032081
1032070
1032081
1032090
1032101

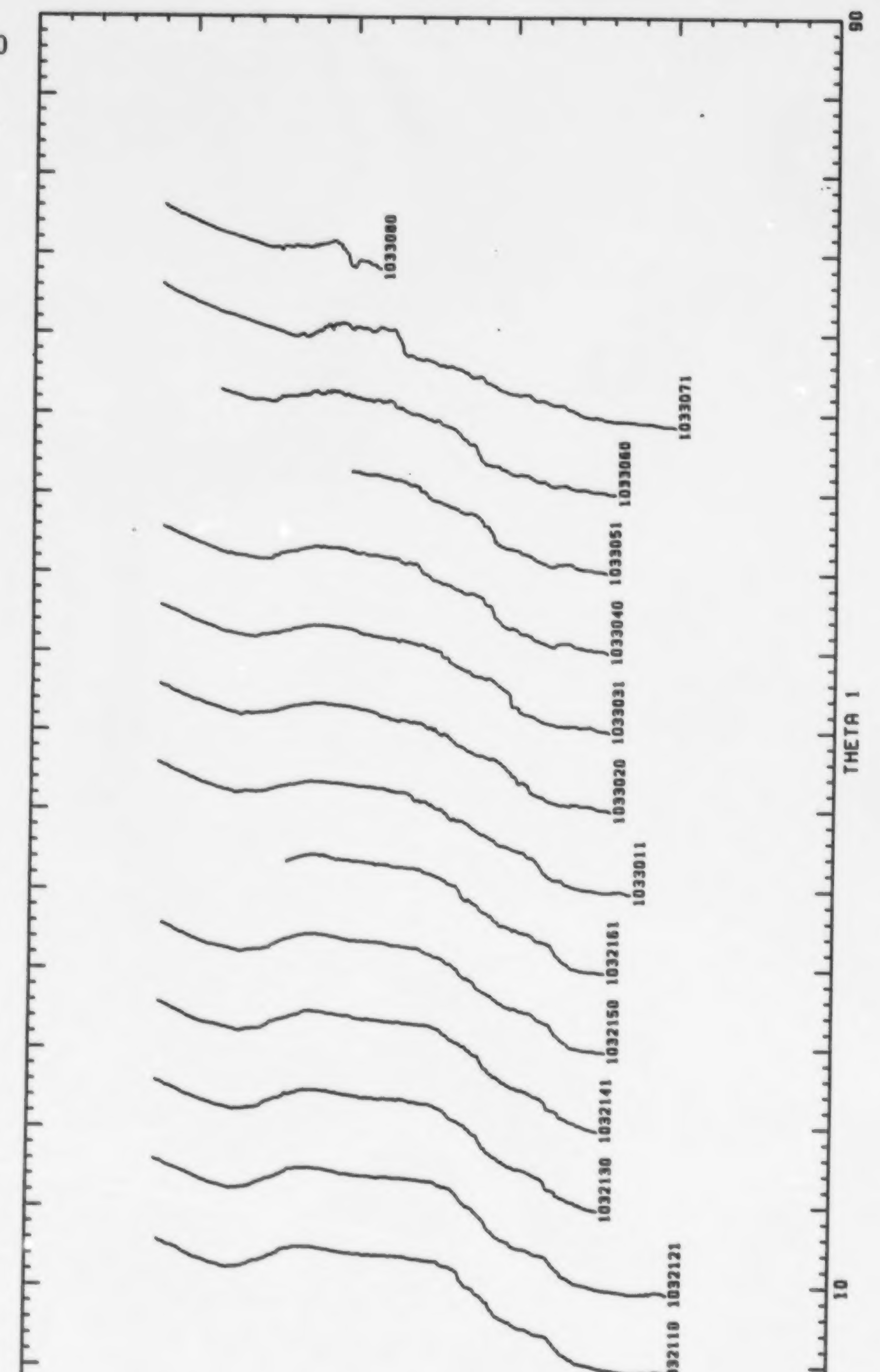

THETA 1
PRESSURE
0
10
90
0
500
2500
1021010
1021021
1031010
1031021
1032010
1032021
1032030
1032041
1032050
1032061
1032070
1032081
1032090
1032101

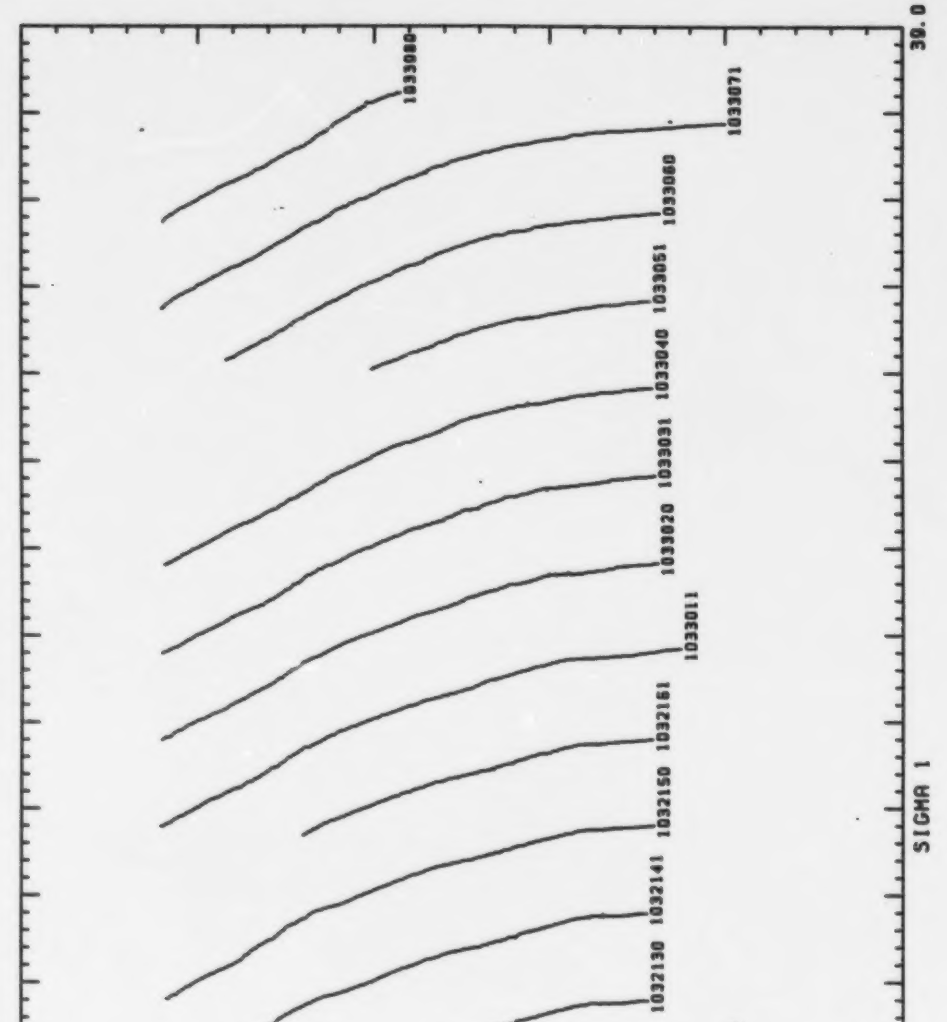

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
1021010
1021021
1031010
1031021
1032010
1032021
1032030
1032041
1032050
1032061
1032070
1032081
1032080
1032101

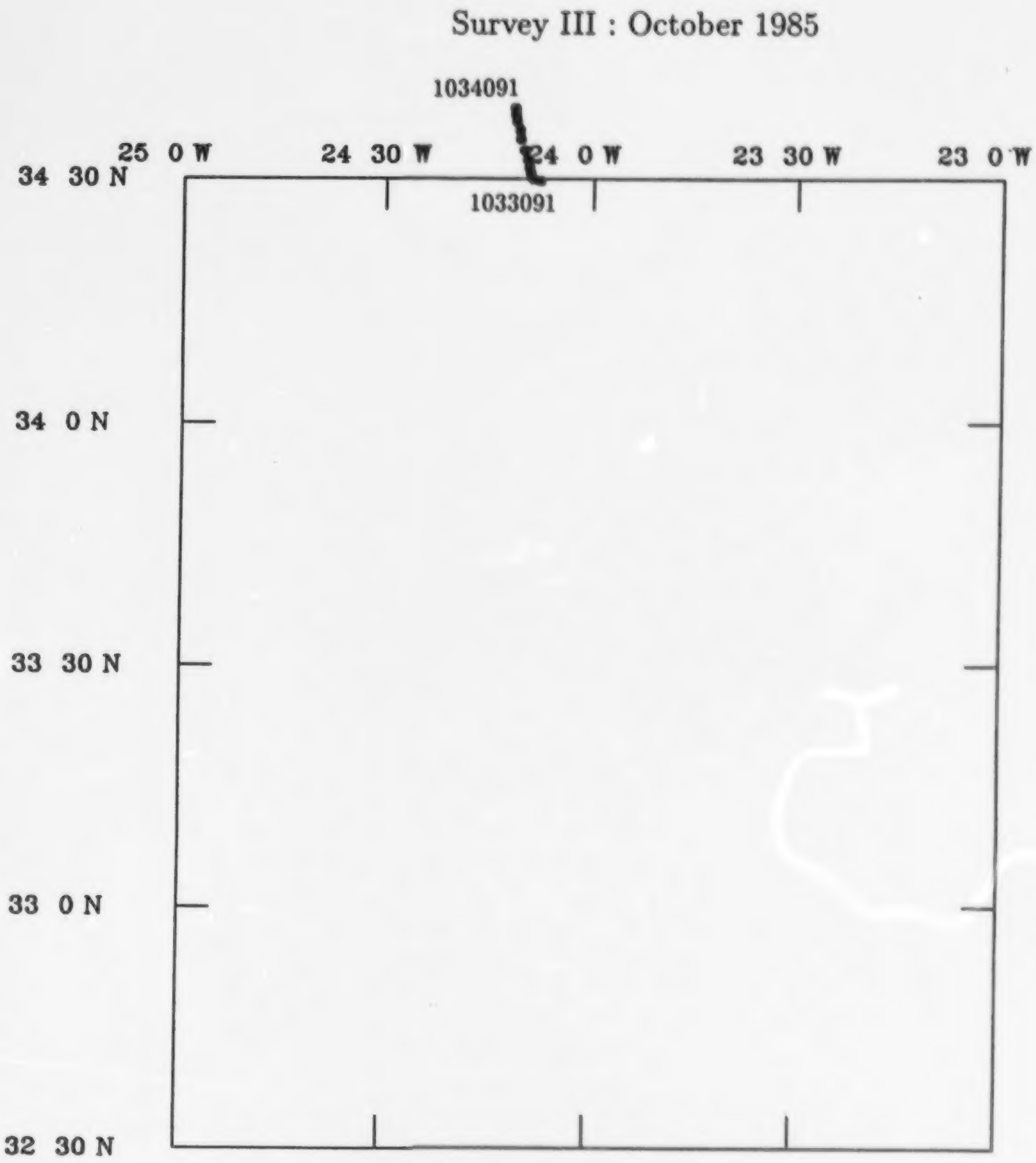
Survey III : October 1985

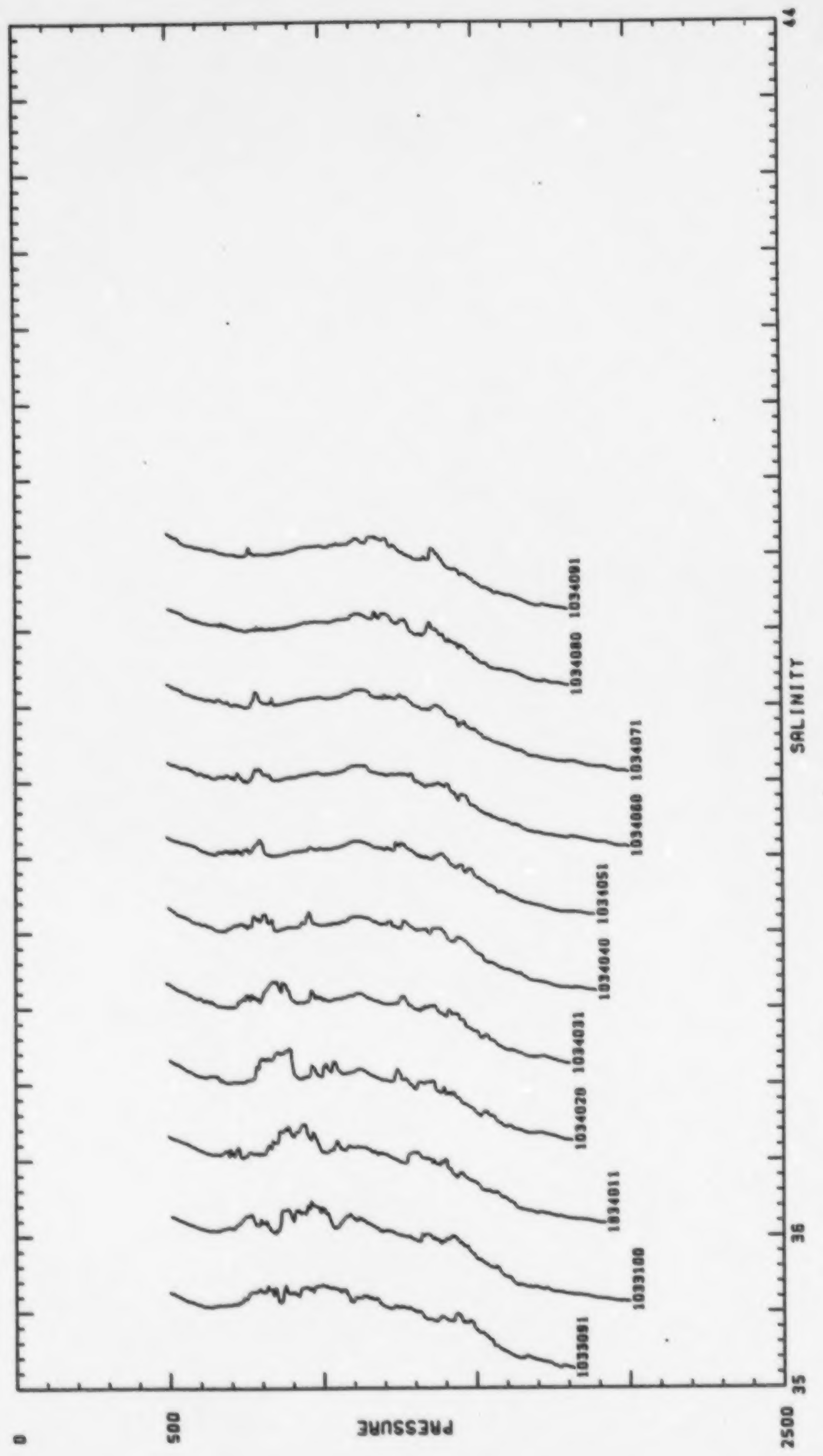



1033080
1033071
1033060
1033051
1033040
1033031
1033020
1033011
1032161
1032150
1032141
1032130
1032121
1032110
SALINITY
35
36
44
PRESSURE
0
500
2500

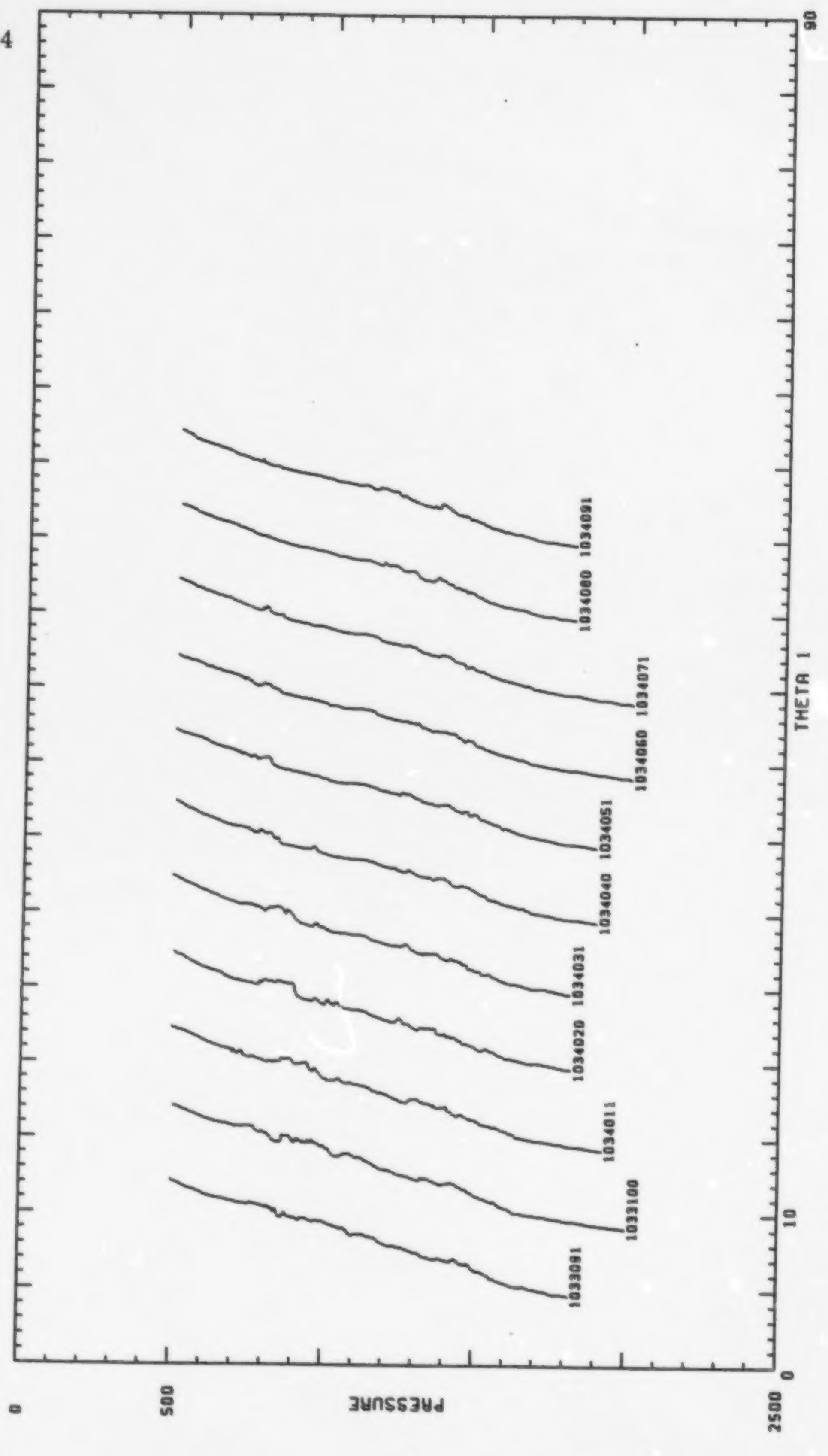

PRESSURE
0
500
2500
THETA 1
0
10
90
1033080
1033071
1033060
1033051
1033040
1033031
1033020
1033011
1032161
1032150
1032141
1032130
1032121
1032110

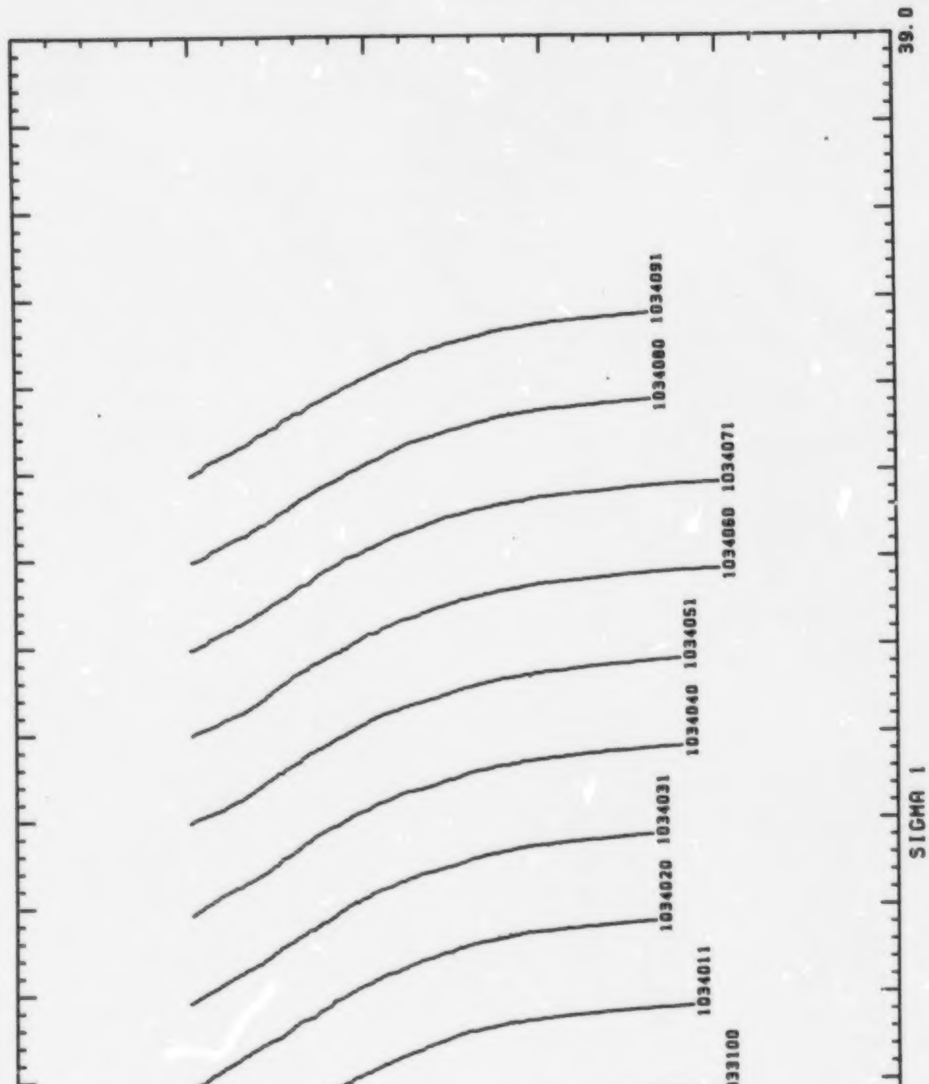

1033080
1033071
1033060
1033051
1033040
1033031
1033020
1033011
1032161
1032150
1032141
1032130
1032121
1032110
SIGMA 1
30.0
31.0
30.0
PRESSURE
0
500
2500


Survey III : October 1985
1034091
1033091
25 0 W
24 30 W
24 0 W
23 30 W
23 0 W
34 30 N
34 0 N
33 30 N
33 0 N
32 30 N



SALINITY
35
36
44
PRESSURE
0
500
2500
1033091
1033100
1034011
1034020
1034031
1034040
1034051
1034060
1034071
1034080
1034091


PRESSURE
0
500
2500
THETA 1
0
10
90
1033081
1033100
1034011
1034020
1034031
1034040
1034051
1034060
1034071
1034080
1034091


1034091
1034080
1034071
1034060
1034051
1034040
1034031
1034020
1034011
1033100
1033091
SIGMA 1
39.0
31.0
30.0
PRESSURE
0
500
2500

SURVEY IV

OCTOBER 1986

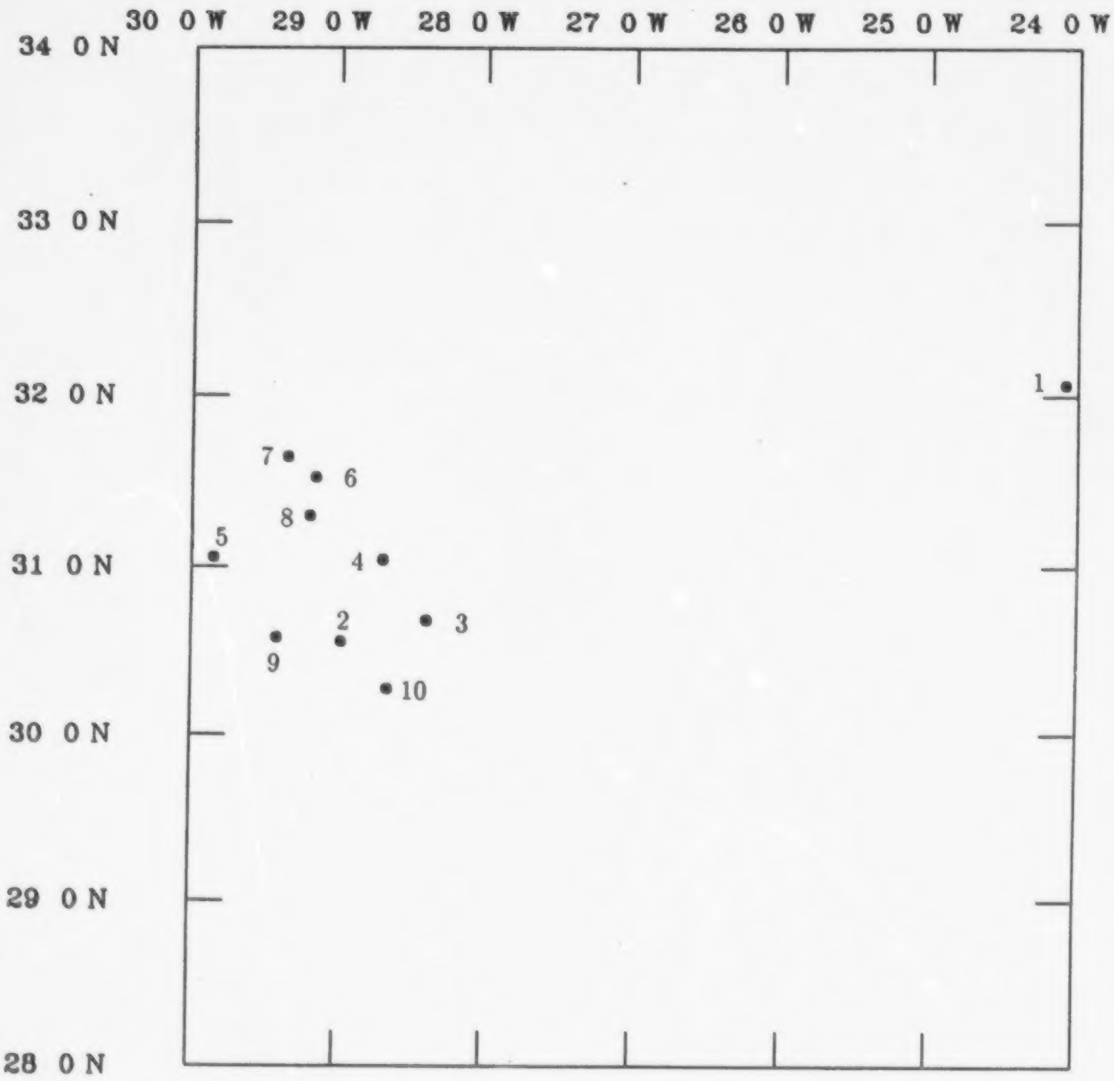
RV ENDEAVOR

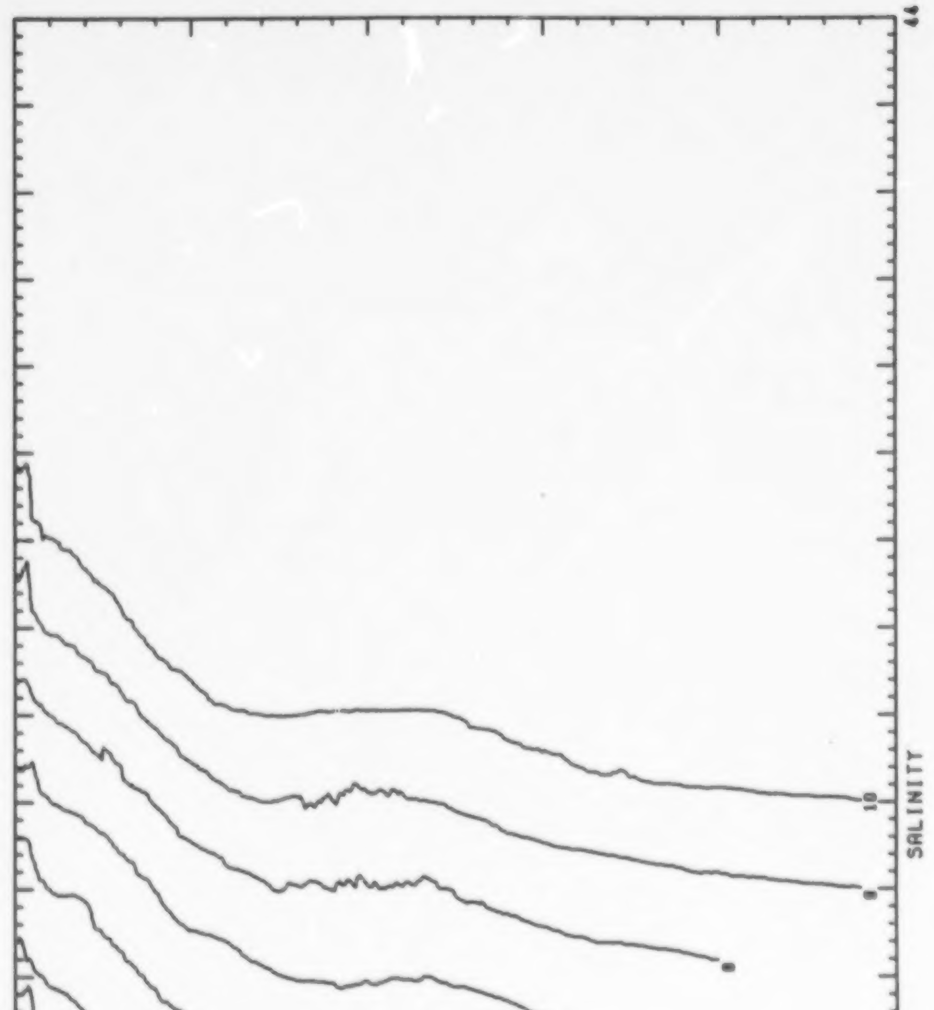
STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
1	32° 3.9′	24° 5.2′	38460	275	—
2	30° 33.4′	28° 58.6′	71820	276	—
3	30° 41.0′	28° 23.5′	31560	277	—
4	31° 2.5′	28° 41.7′	47280	277	—
5	31° 3.4′	29° 51.2′	75720	277	—
6	31° 31.4′	29° 9.4′	14760	278	—
7	31° 38.6′	29° 21.0′	32280	278	—
8	31° 18.0′	29° 11.9′	58620	278	—
9	30° 35.0′	29° 25.0′	76500	278	—
10	30° 16.5′	28° 39.4′	15420	279	—
11	21° 56.5′	21° 51.5′	66240	282	33.4
12	22° 6.7′	22° 21.9′	22140	283	26.8
13	22° 7.0′	22° 27.0′	29700	283	35.5
14	22° 7.0′	22° 16.0′	38400	283	16.6
15	22° 7.1′	22° 11.0′	46500	283	8.1
16	22° 7.1′	22° 6.2′	56580	283	1.9
17	22° 7.1′	22° 2.1′	65160	283	7.6
18	22° 7.5′	21° 57.8′	72480	283	14.8
19	22° 7.0′	21° 53.5′	80460	283	22.3
20	21° 56.6′	22° 5.7′	11400	284	21.3
21	22° 4.3′	22° 5.5′	21900	284	7.2
22	22° 11.0′	22° 6.0′	34020	284	5.4
23	22° 15.0′	22° 6.0′	41400	284	12.8
90053	31° 40.6′	25° 25.7′	85140	277	—
90054	31° 53.1′	28° 3.8′	54060	278	—
90055	30° 49.8′	28° 14.5′	57660	278	—
90056	30° 46.1′	28° 25.0′	61200	278	—
90057	30° 40.9′	28° 37.1′	64740	278	—
90058	30° 37.6′	28° 48.1′	68340	278	—
90059	30° 33.2′	28° 59.2′	72000	278	—
90510	30° 30.3′	29° 8.4′	82740	278	—
90511	30° 27.0′	29° 19.9′	0	279	—
90512	30° 19.7′	29° 22.4′	3600	279	—
90513	30° 8.6′	29° 18.7′	7200	279	—
90514	30° 3.0′	29° 8.9′	10860	279	—
90515	30° 1.7′	28° 56.4′	14400	279	—
90516	30° 4.9′	28° 44.3′	18240	279	—
90517	30° 11.4′	25° 35.8′	21600	279	—
90518	30° 19.1′	28° 26.8′	25200	279	—
90519	30° 29.4′	28° 24.0′	28800	279	—
90520	30° 55.6′	28° 33.9′	43140	279	—
90521	30° 3.2′	28° 50.5′	57600	279	—
90522	31° 3.7′	29° 2.2′	61200	279	—
90523	31° 4.0′	29° 14.0′	64800	279	—
90524	31° 3.7′	29° 26.3′	68340	279	—

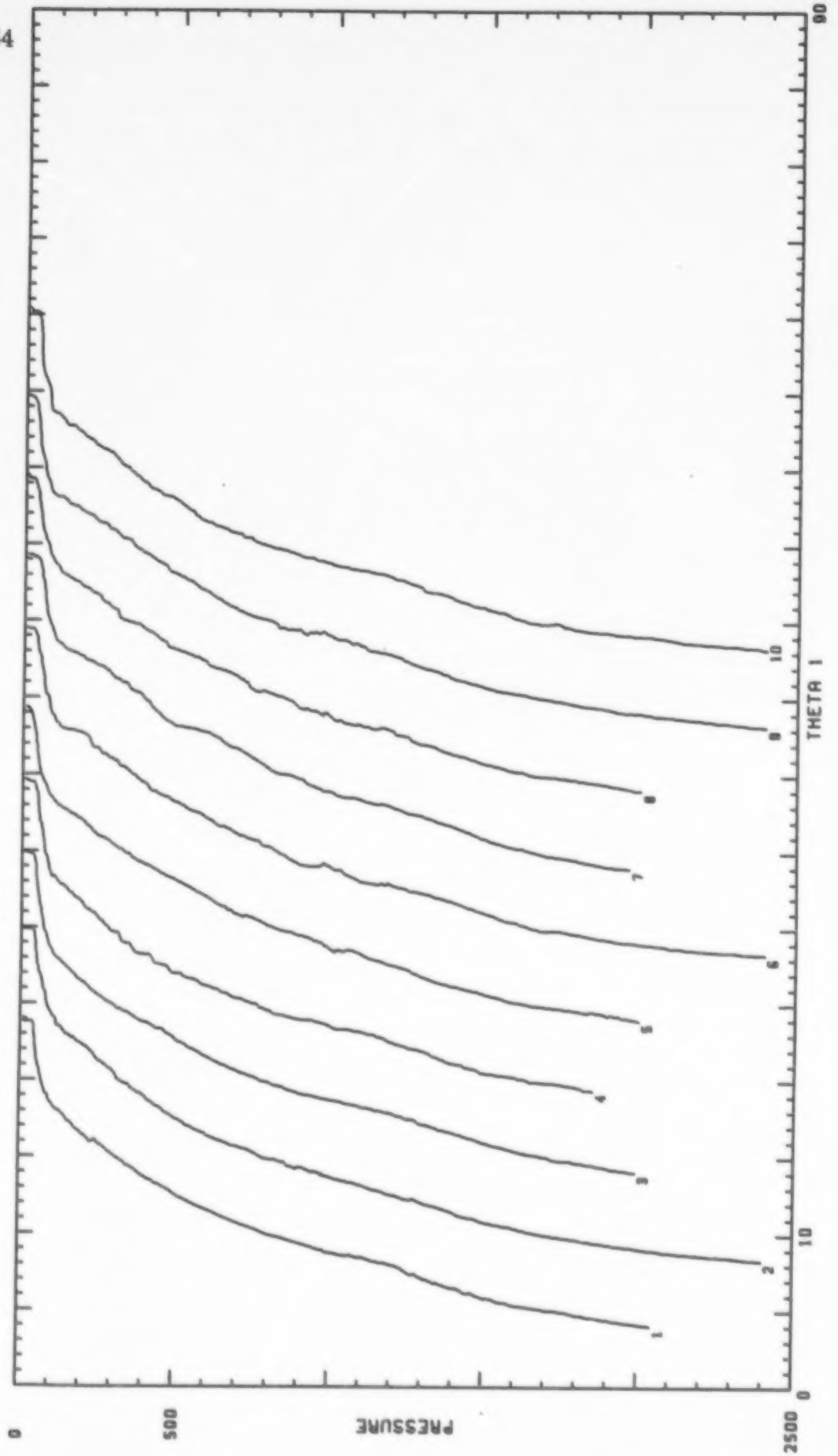
STATION	LATITUDE (N)	LONGITUDE (W)	SECONDS	JULIAN DAY	RADIUS (km)
90526	31° 3.5′	29° 40.5′	72420	279	—
90527	31° 8.6′	29° 44.8′	83700	279	—
90528	31° 13.5′	29° 37.1′	0	280	—
90529	31° 16.9′	29° 25.8′	3600	280	—
90530	31° 20.4′	29° 14.6′	7200	280	—
90531	31° 23.8′	29° 3.2′	10980	280	—
90532	31° 30.8′	29° 8.8′	16620	280	—
90533	31° 29.9′	29° 18.8′	25200	280	—
90534	31° 37.4′	29° 10.9′	28800	280	—
90535	31° 33.2′	29° 31.6′	43140	280	—
90536	31° 27.6′	29° 43.0′	46800	280	—
90537	31° 22.2′	29° 34.0′	52140	280	—
90538	31° 11.0′	29° 15.0′	68700	280	—
90539	30° 55.2′	29° 21.0′	73920	280	—
90540	30° 40.0′	29° 15.1′	2100	281	—
90541	30° 23.0′	28° 49.6′	10980	281	—
90542	21° 53.6′	22° 7.4′	61440	284	26.9
90543	21° 54.5′	22° 2.0′	63480	284	26.3
90544	21° 55.5′	21° 56.7′	65280	284	28.7
90545	21° 56.5′	21° 51.4′	67500	284	33.6
90546	22° .8′	21° 56.8′	75420	284	21.3
90547	22° 7.0′	22° 2.9′	78120	284	6.3
90548	22° 11.3′	22° 7.0′	80760	284	6.0
90549	22° 17.9′	22° 13.0′	83520	284	21.4
90550	22° 18.0′	22° 2.0′	780	285	19.9
90551	22° 18.1′	21° 53.1′	3600	285	29.5
90552	22° 15.1′	21° 56.5′	6960	285	21.4
90553	22° 13.2′	21° 59.2′	8220	285	15.6
90554	22° 11.0′	22° 2.0′	9480	285	9.3
90555	22° 9.0′	22° 4.7′	10740	285	3.4
90556	22° 7.3′	22° 7.7′	11880	285	2.7
90557	22° 5.2′	22° 10.8′	13620	285	9.3
90558	22° 3.2′	22° 13.6′	15000	285	15.3
90559	22° .7′	22° 17.2′	16740	285	23.1
90560	21° 58.3′	22° 20.9′	18480	285	30.8
90561	21° 48.3′	22° 6.1′	8160	286	36.7
90562	22° 2.6′	22° 5.1′	20940	286	10.4

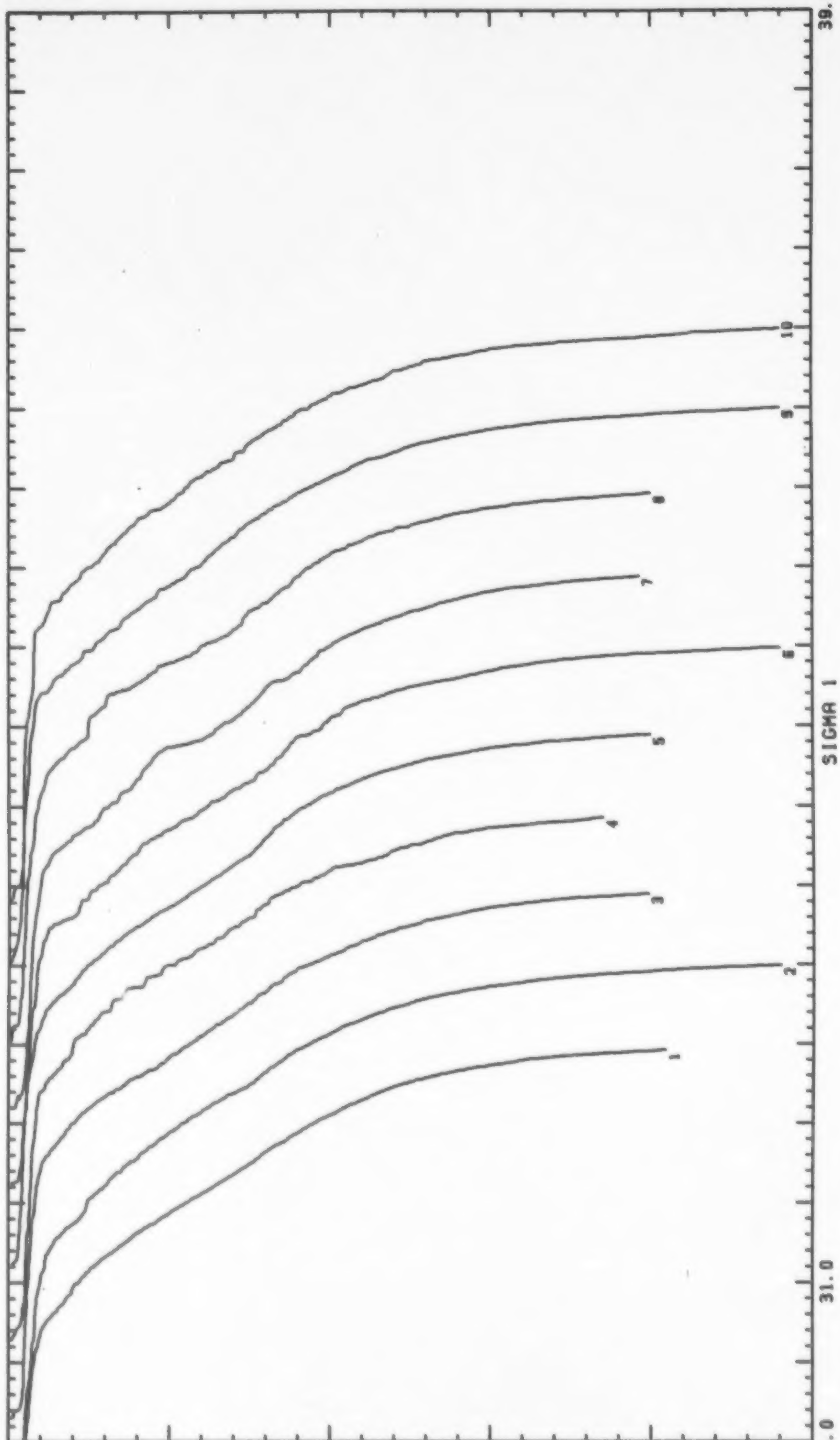
INTENTIONALLY LEFT BLANCK

Survey IV : October 1986

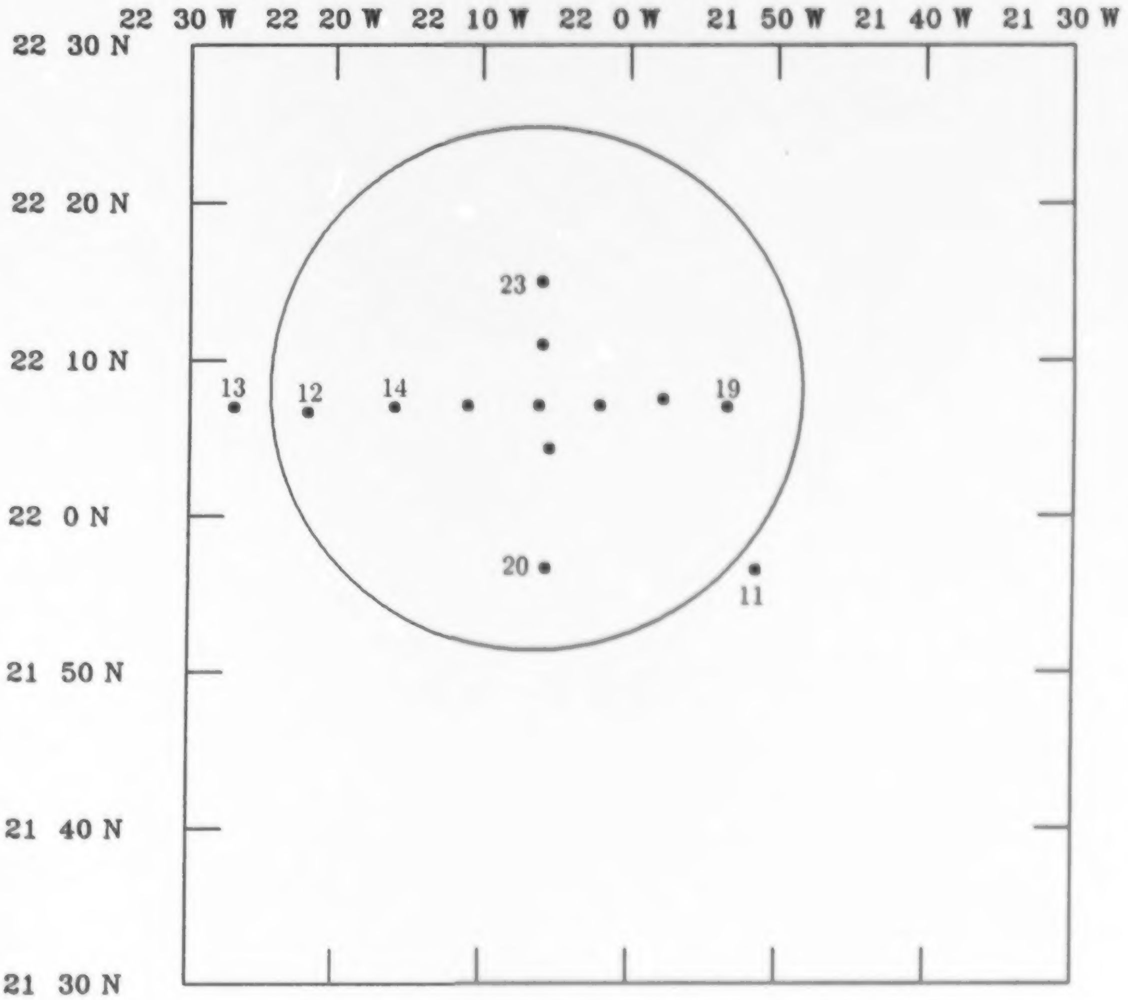


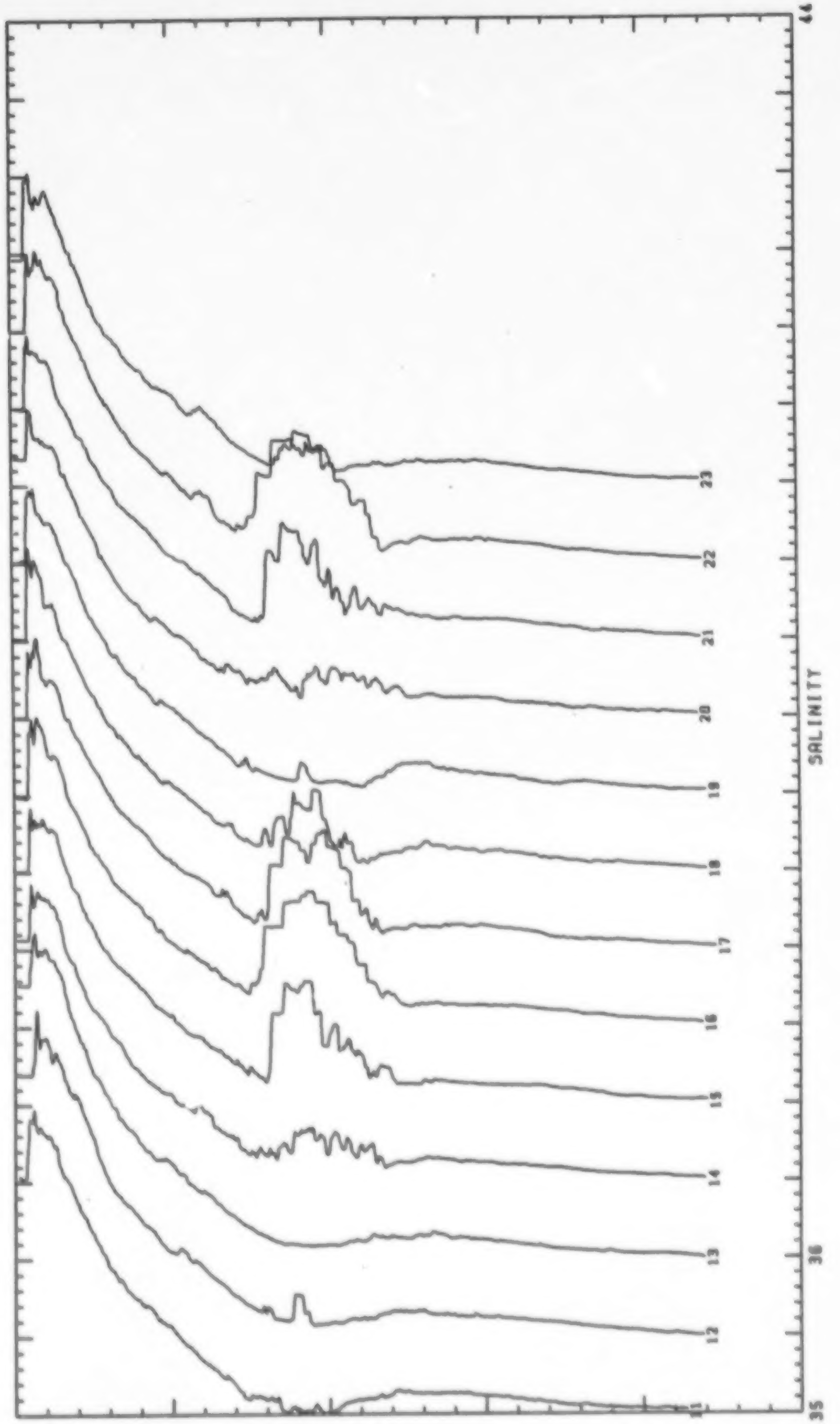

PRESSURE
0
500
2500
SALINITY
35
36
44
1
2
3
4
5
6
7
8
9
10

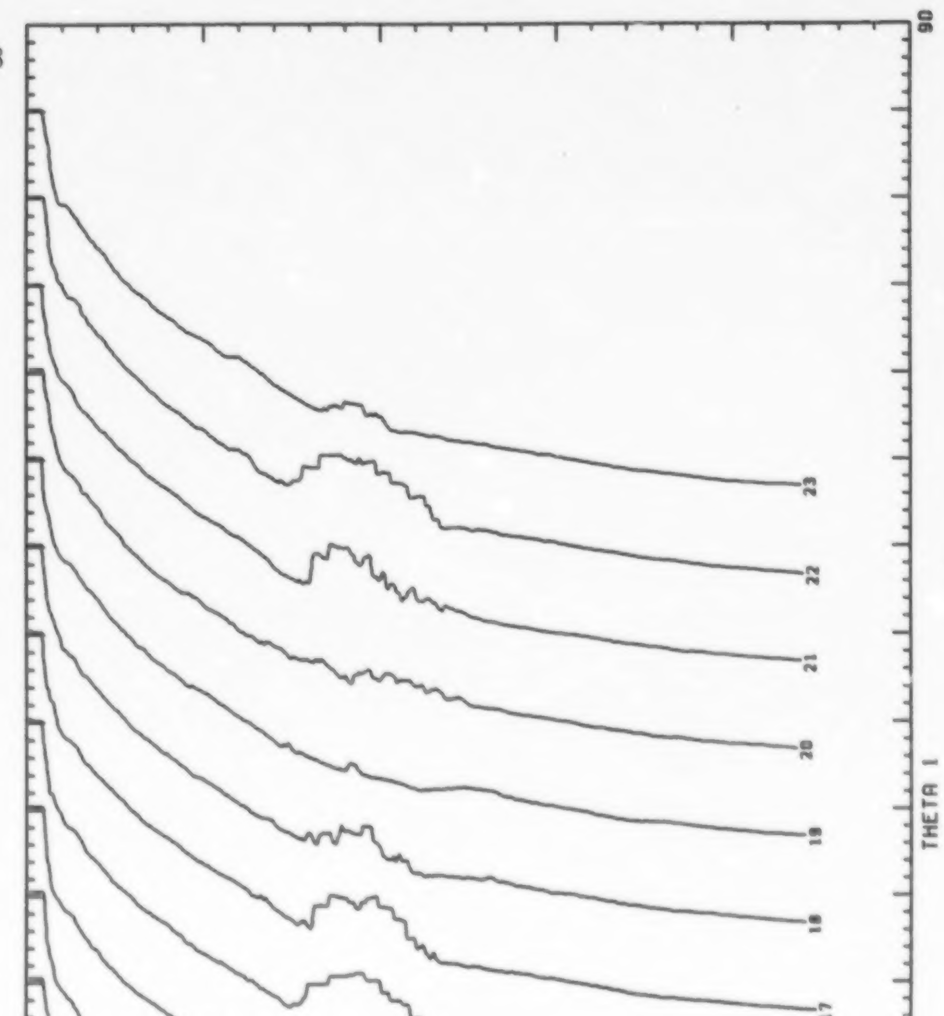

PRESSURE
THETA 1
0
500
2500
0
10
90
1
2
3
4
5
6
7
8
9
10

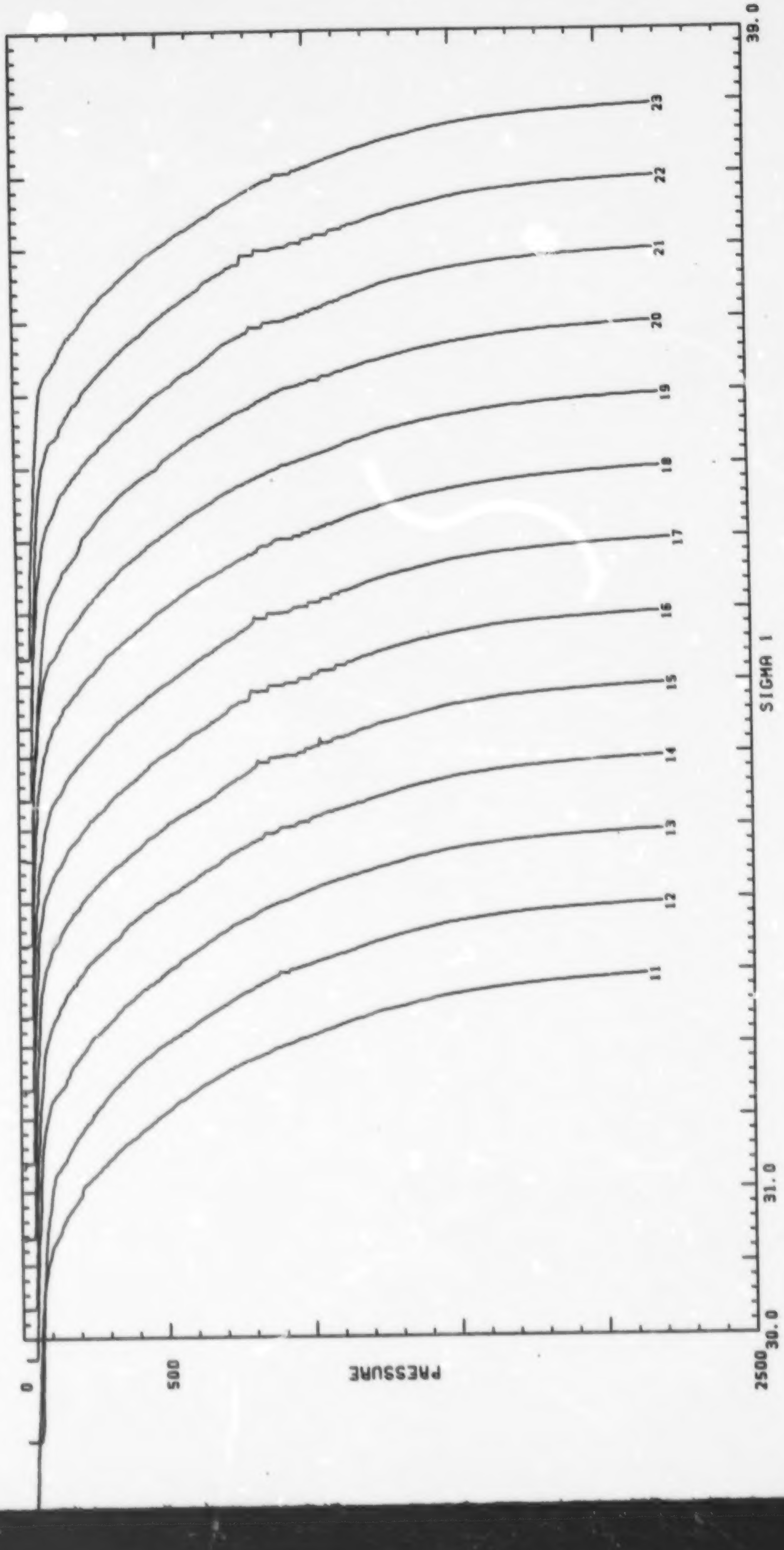

SIGMA 1
30.0
31.0
39.0
PRESSURE
0
500
2500
1
2
3
4
5
6
7
8
9
10

Survey IV : October 1986

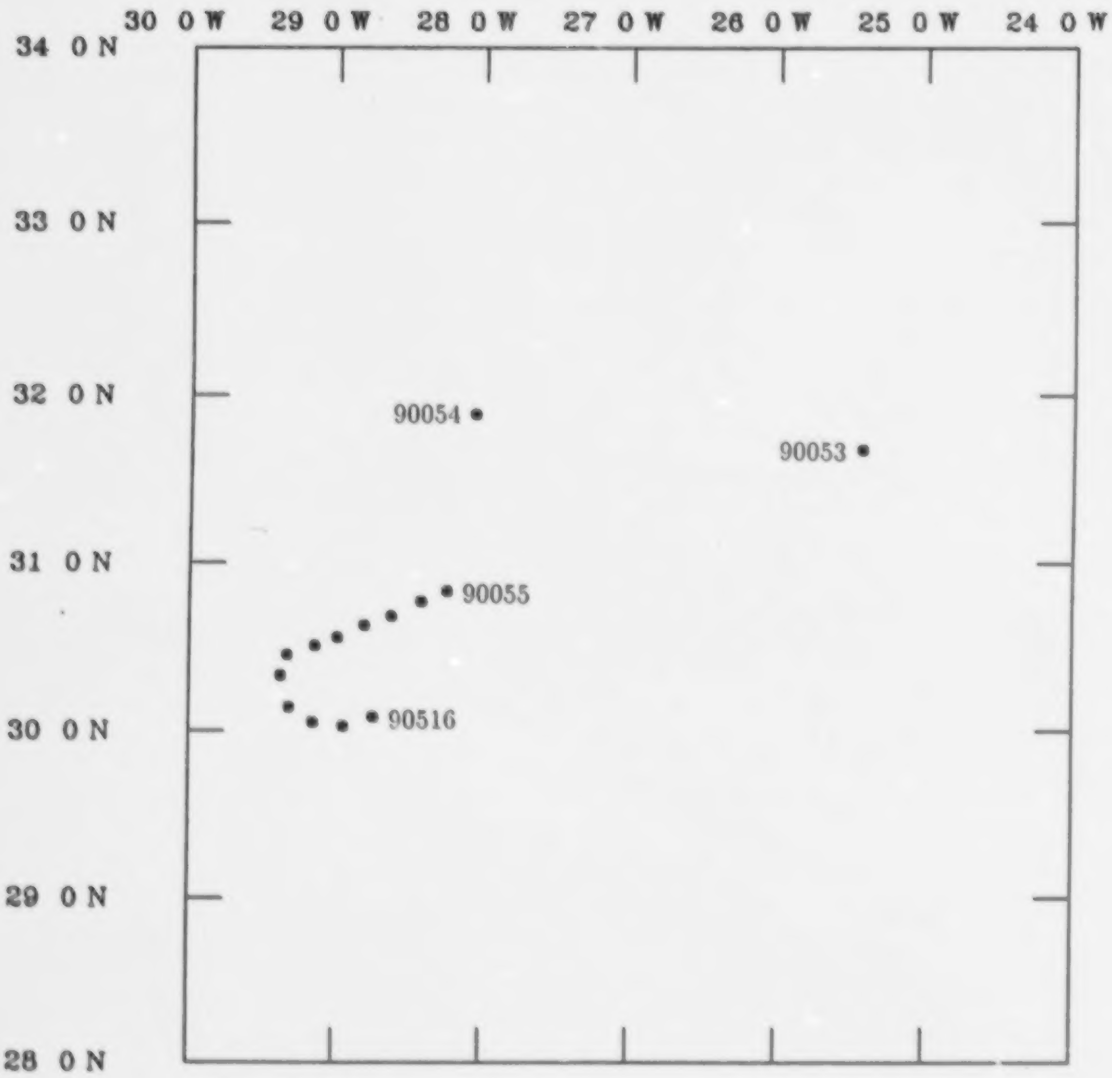


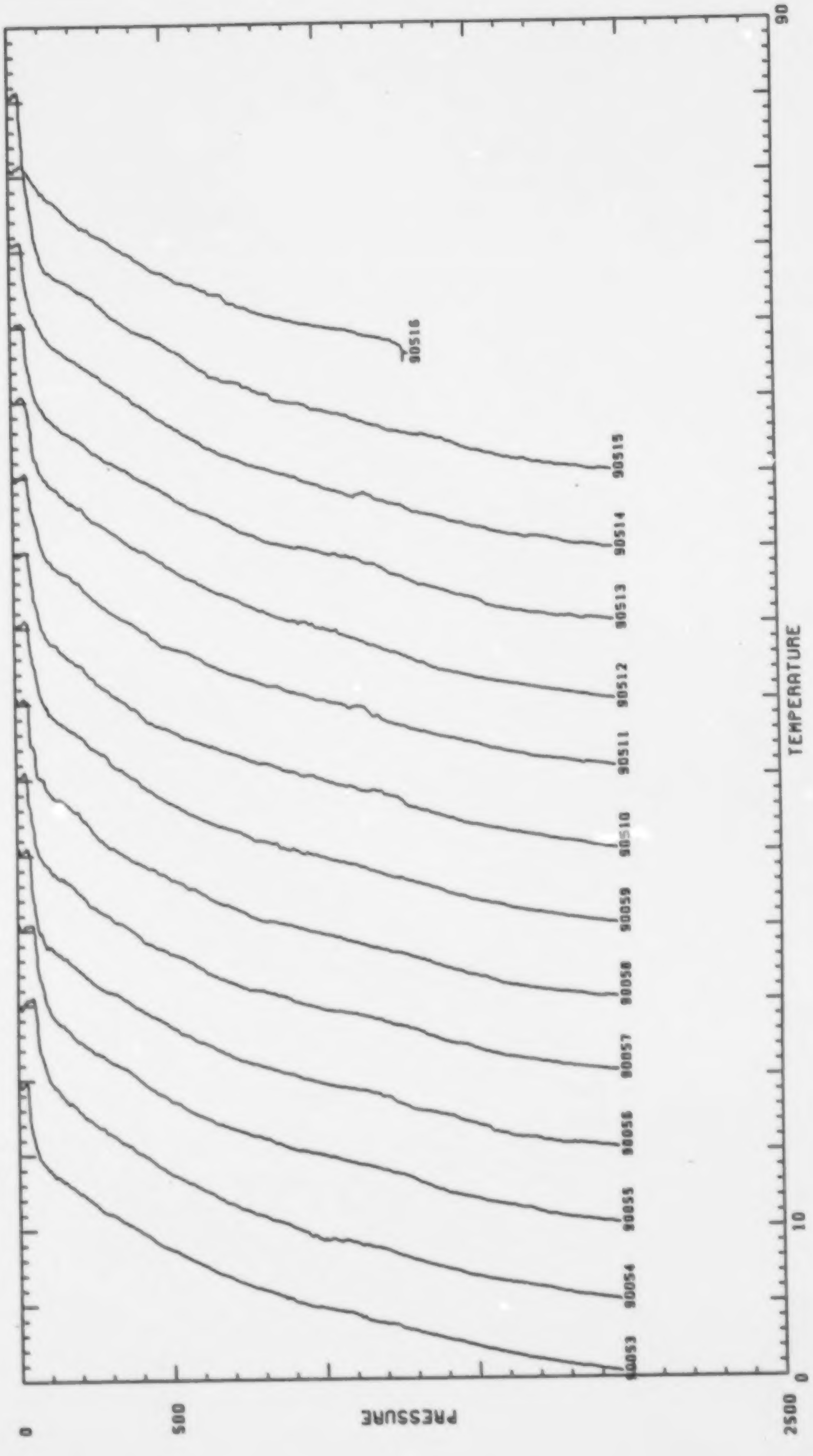

SALINITY
35
36
PRESSURE
0
500
2500
12
13
14
15
16
17
18
19
20
21
22
23


PRESSURE
0
500
2500
THETA I
0
10
90
11
12
13
14
15
16
17
18
19
20
21
22
23

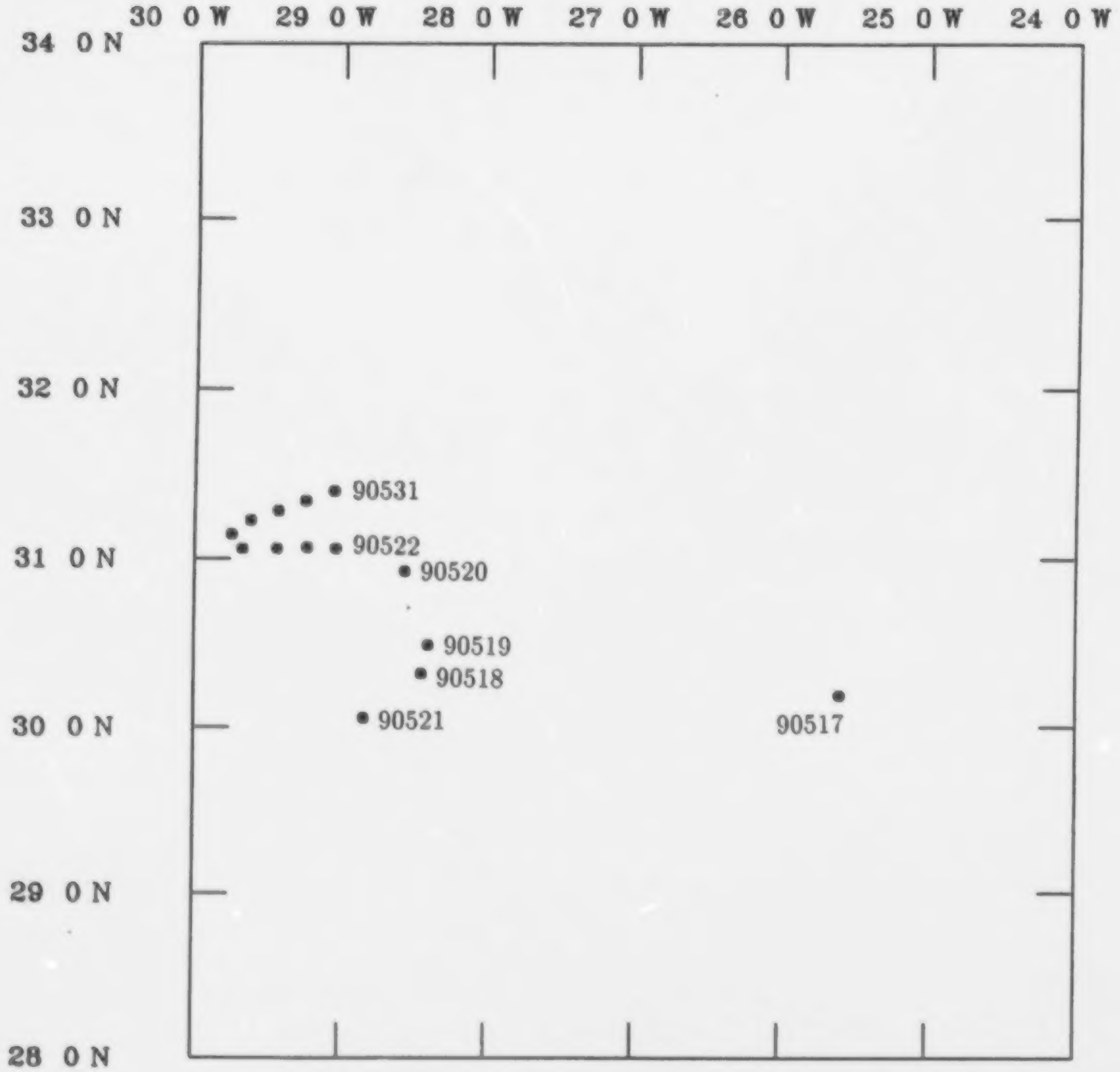

PRESSURE
0
500
2500
SIGMA 1
30.0
31.0
39.0
11
12
13
14
15
16
17
18
19
20
21
22
23

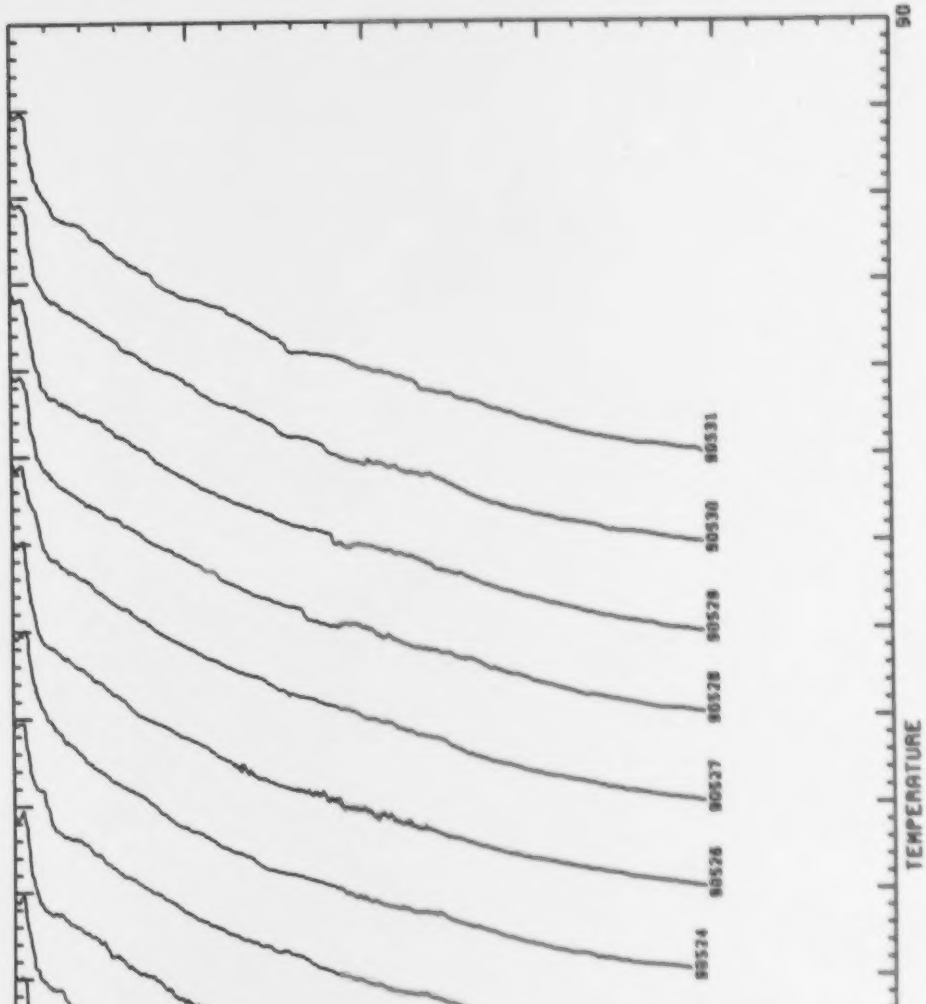
Survey IV : October 1986



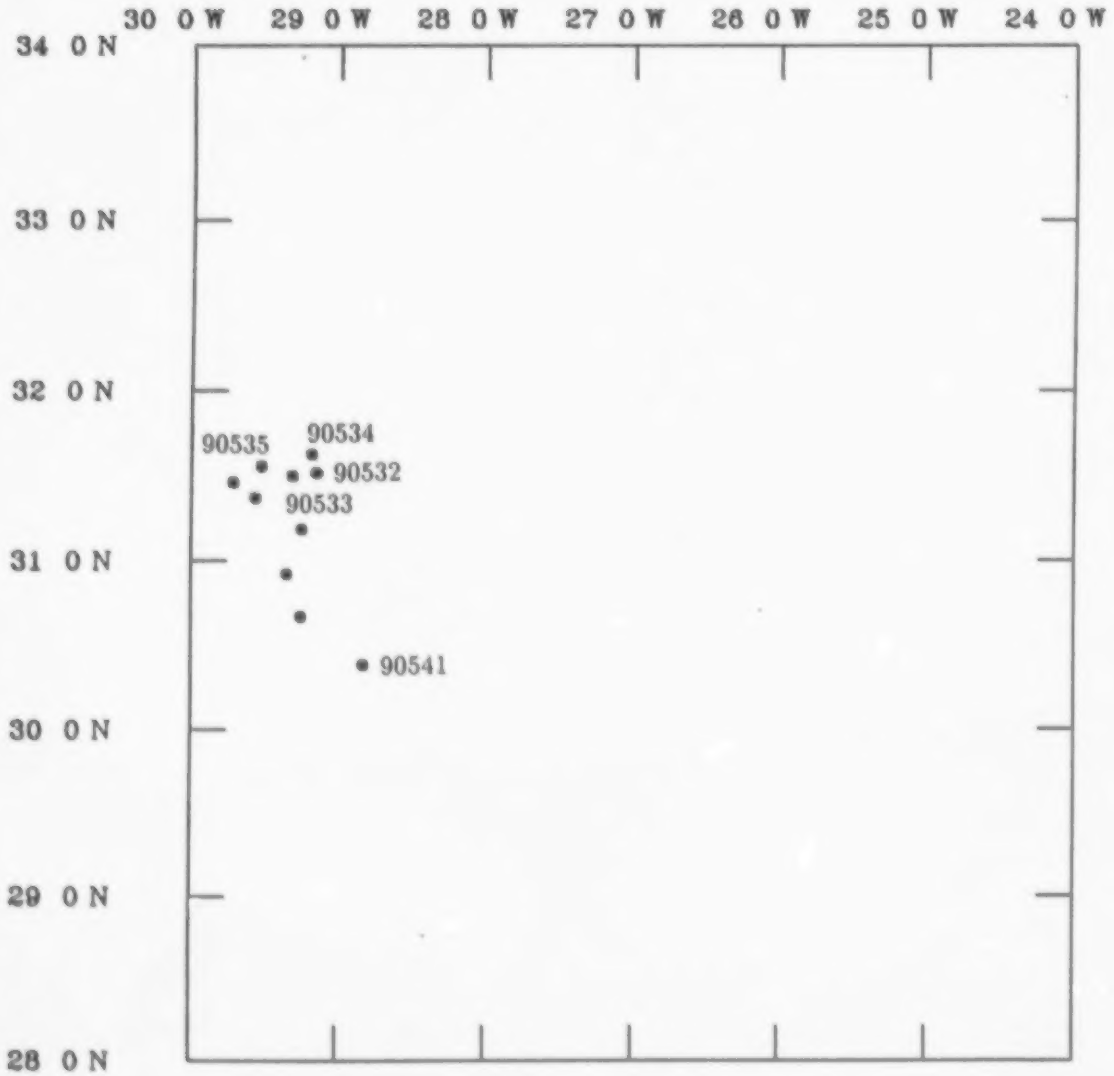

90516
90515
90514
90513
90512
90511
90510
90059
90058
90057
90056
90055
90054
90053
TEMPERATURE
PRESSURE
0
500
2500
0
10
90

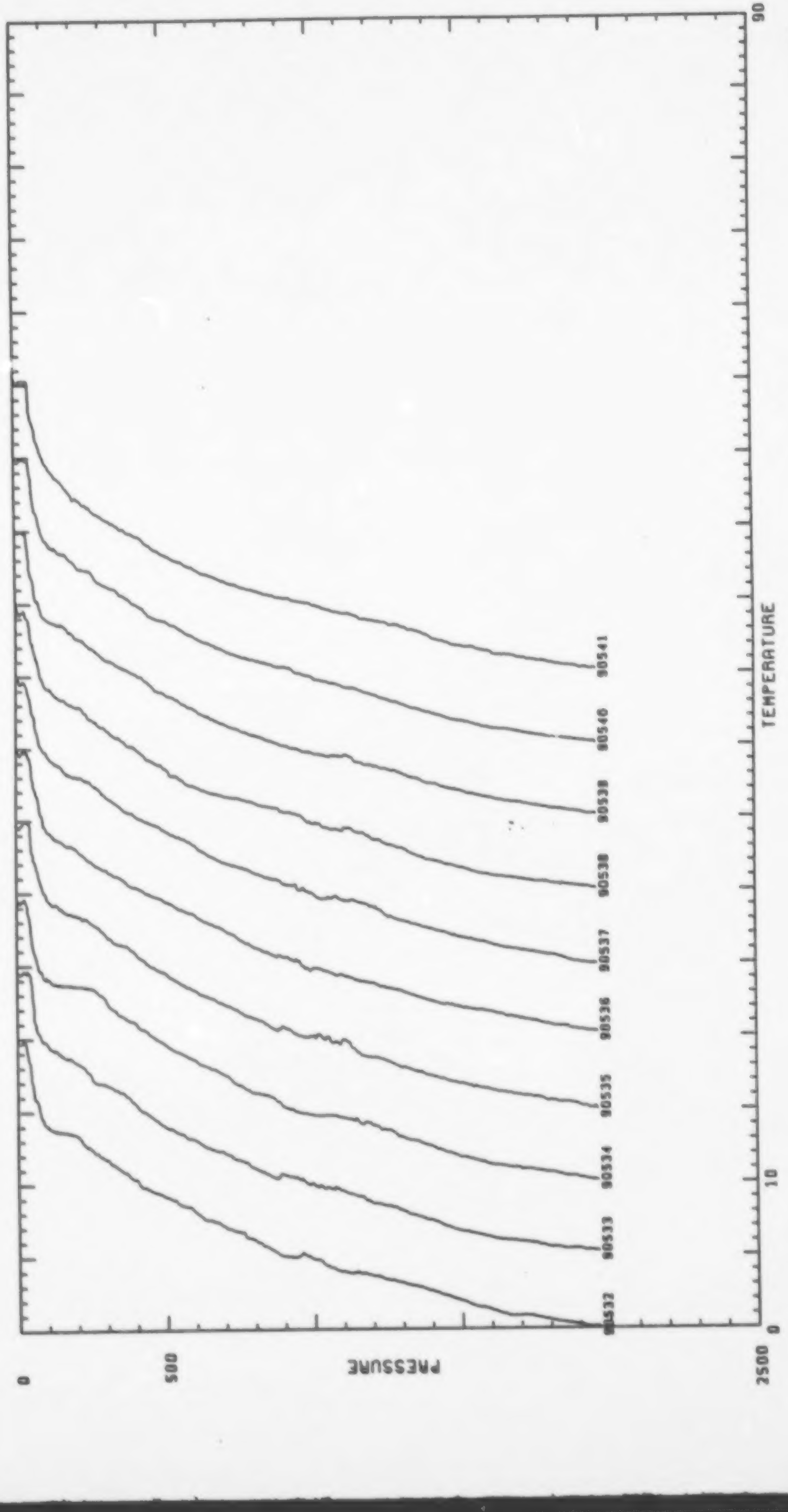
Survey IV : October 1986



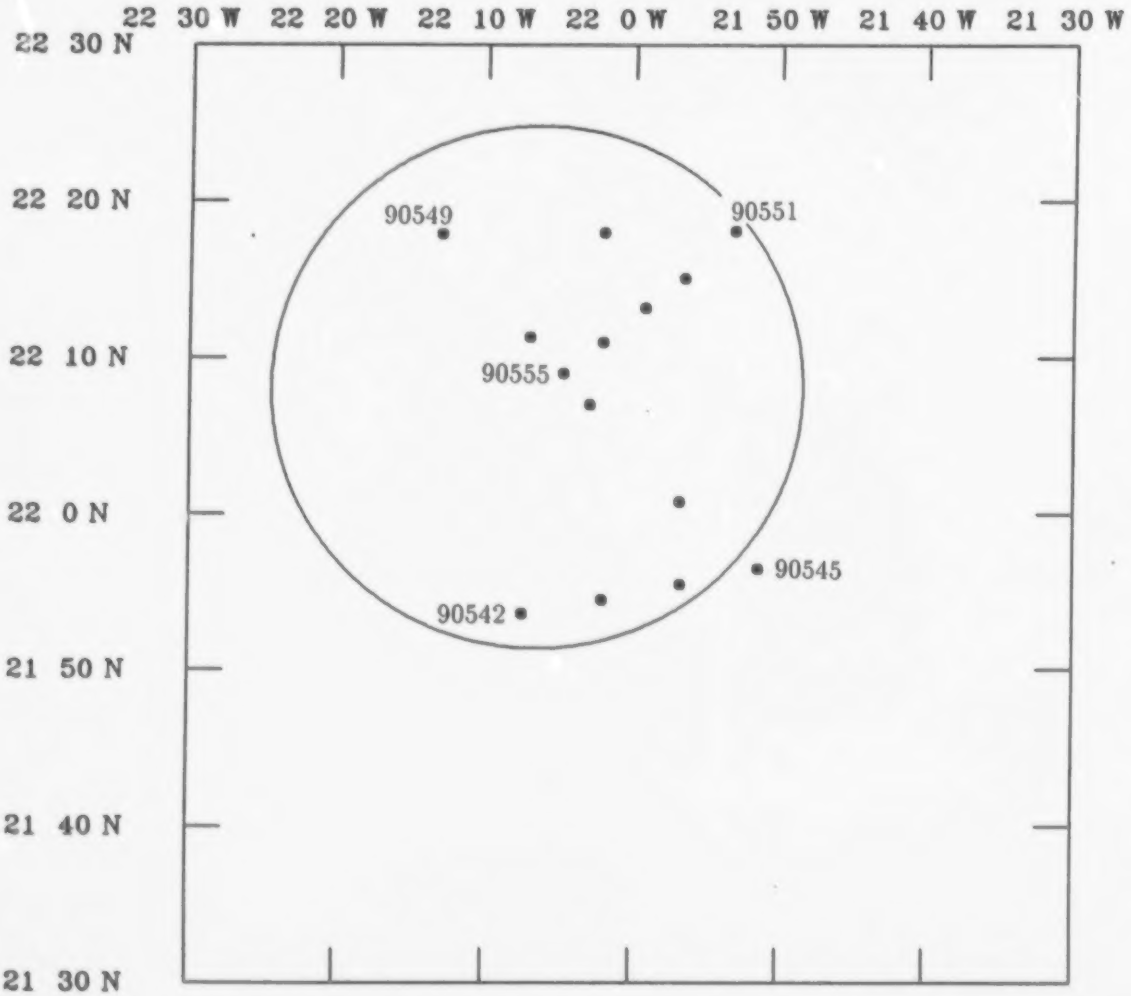

PRESSURE
0
500
2500
TEMPERATURE
0
10
50

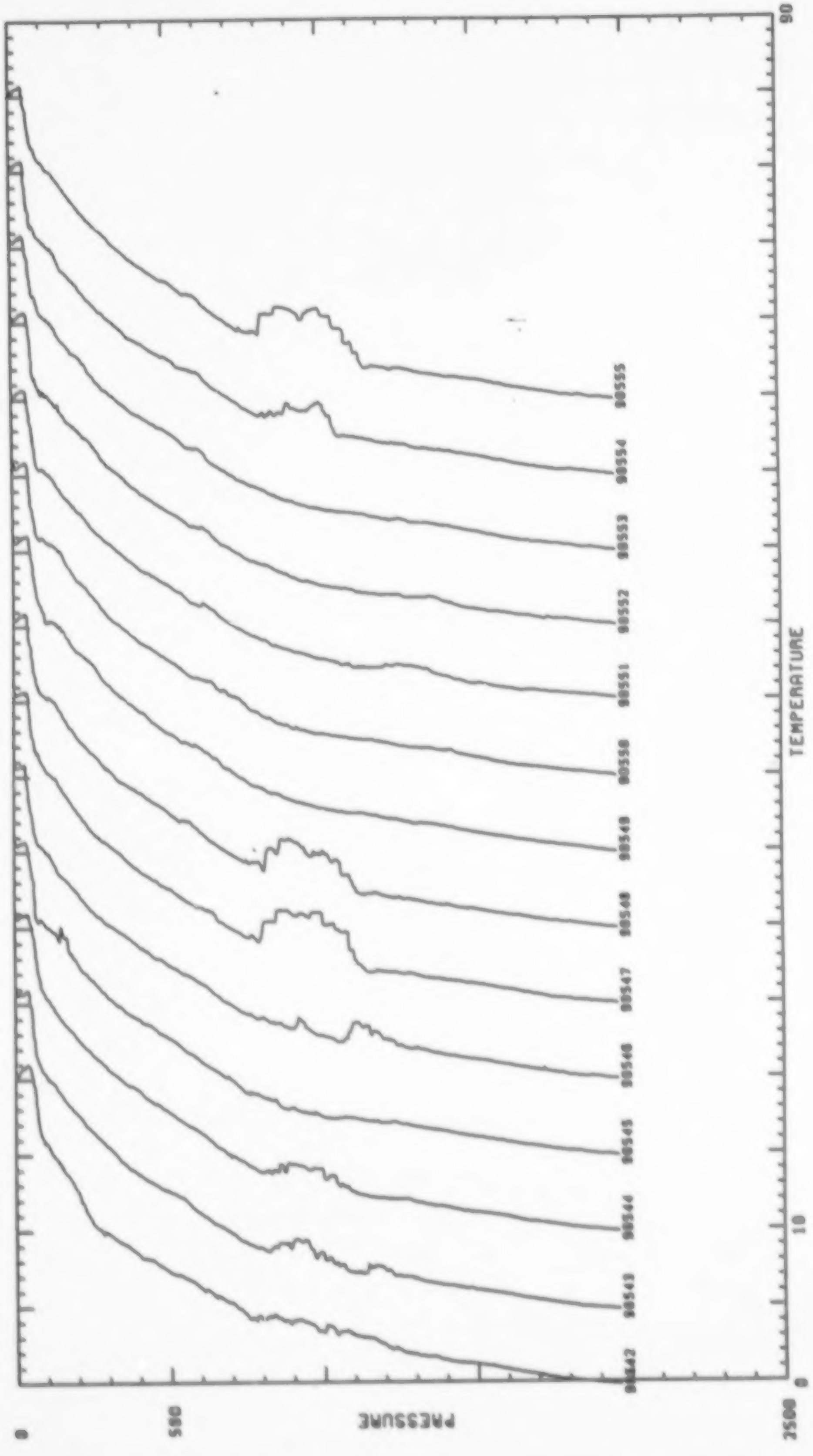
Survey IV : October 1986



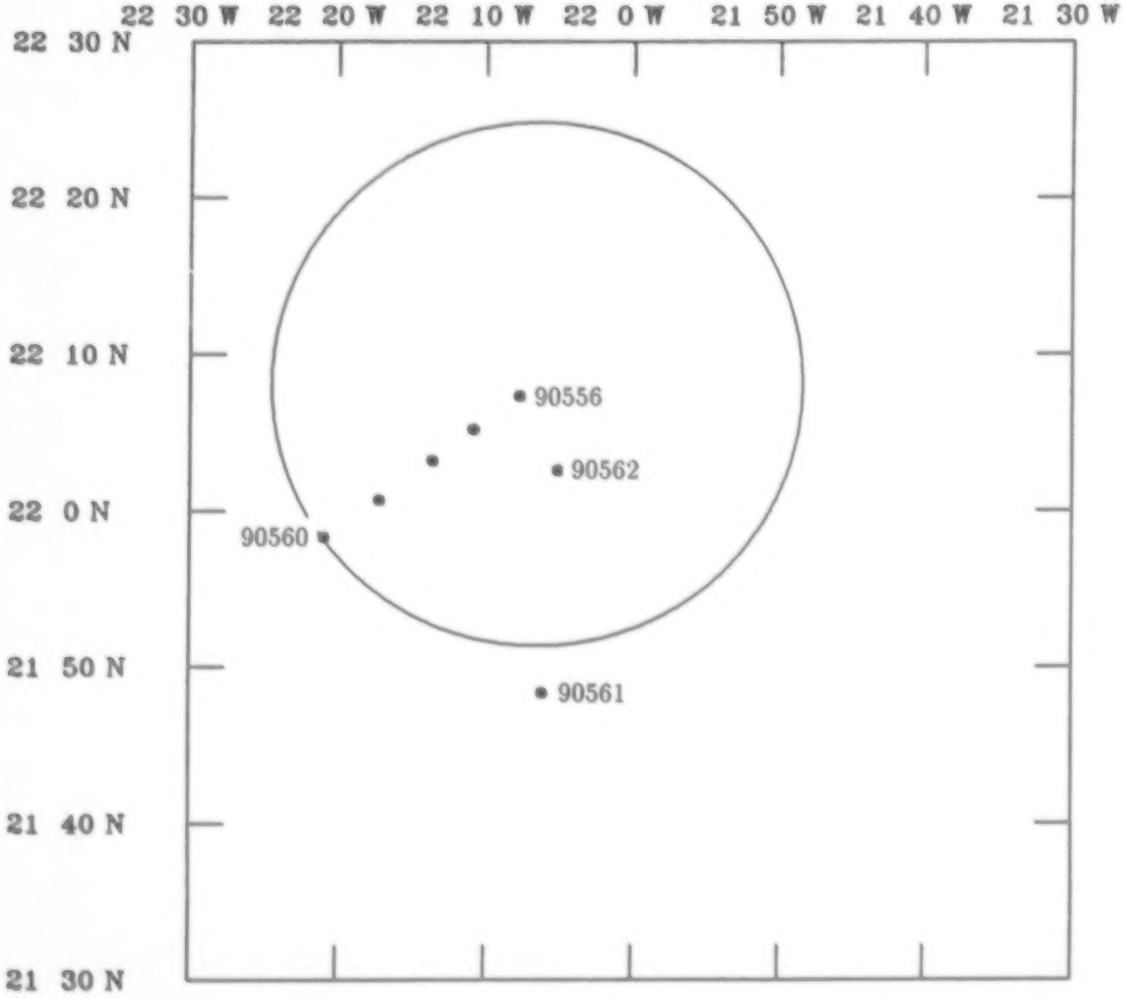

PRESSURE
0
500
2500
TEMPERATURE
0
10
90
90532
90533
90534
90535
90536
90537
90538
90539
90540
90541

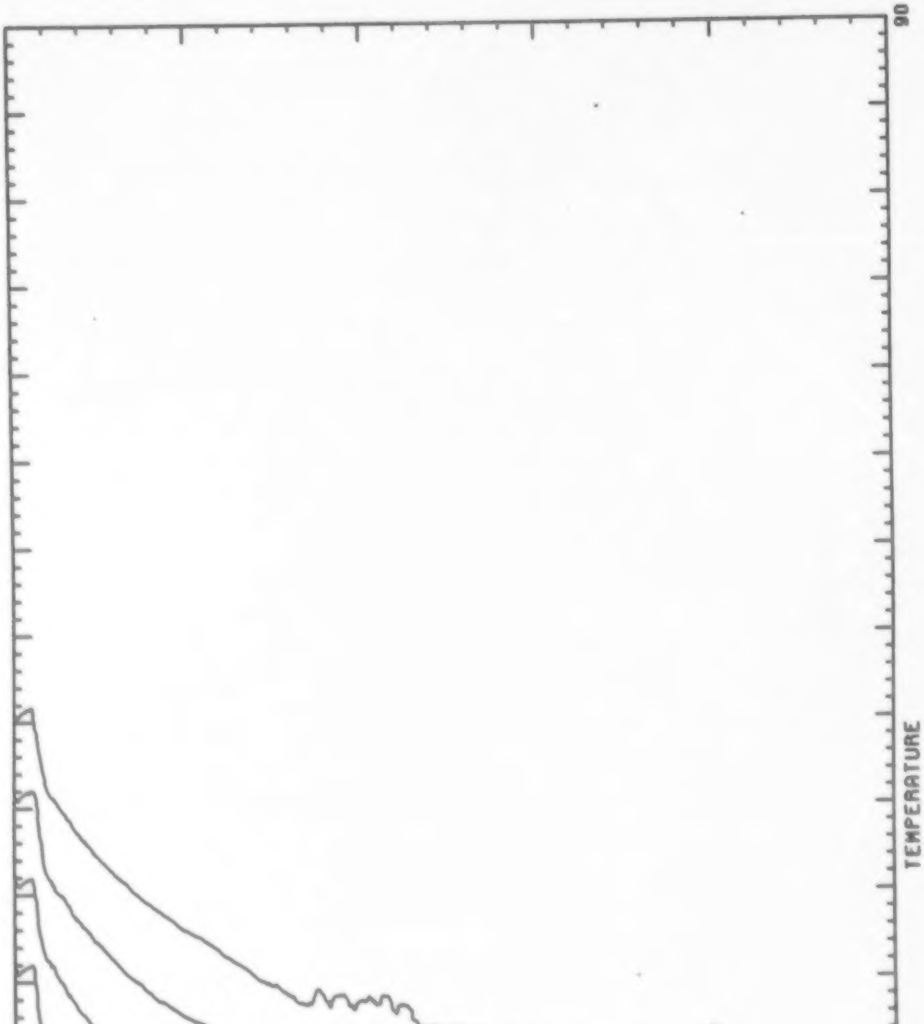
Survey IV : October 1986




TEMPERATURE
PRESSURE
0
500
2500
10
90

Survey IV : October 1986




PRESSURE
0
500
2500
TEMPERATURE
0
10
90
90556
90557
90558
90559
90560
90561
90562